

JAERI - M
90-206

排気筒から放出される放射性雲の等濃度分布図
および放射性雲からの等ガンマ線量率分布図 (II)

1990年11月

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mura, Naka-gun, Ibaraki-ken 319-11, Japan.

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編集兼発行 日本原子力研究所
印 刷 いばらき印刷株

排気筒から放出される放射性雲の等濃度分布図
および放射性雲からの等ガンマ線量率分布図(Ⅲ)

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(1990年10月24日受理)

国際放射線防護委員会の新勧告(ICRP Publ. 26)の国内法令への取り入れに伴い、1989年3月に各指針が改訂された。本報告は、これら指針に適合するように、以前刊行した「排気筒から放出される放射性雲の等濃度分布図および放射性雲からの等 γ 線照射線量率分布図」(JAERI-M 82-021)の改訂版として作成したものである。改訂に当たっての主な変更箇所は、(1)大気中放射能濃度およびガンマ線量率の単位を国際単位系に変更、(2)照射線量率を空気吸収線量率に変更、(3)単位放出率を1 Ci/hから1 GBq/hに変更、(4)放出高として30 mと50 mの2点の追加である。

ここに掲げた図は、0～200 mの間の13点の放出高について、A～Fの6クラスの大気安定度別に計算した結果である。大気中放射能濃度の計算は、Pasquillの式を使用し、ガンマ線量率の計算は、計算コードGAMPULを空気吸収線量率が計算できるよう変更して行った。

大気中放射能濃度およびガンマ線量率の計算に当たっては、「発電用原子炉施設の安全解析に関する気象指針」に従い、煙の鉛直拡散幅 σ_z が1,000 mを超える場合は1,000 mとした。 σ_z に制限を加えない場合の比較を風下軸上値について行った。

Isopleths of Surface Air Concentration and Surface Air Absorbed
Dose Rate due to a Radioactive Cloud Released from a Stack (II)

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(Received October 24, 1990)

Various Guides in Japan were revised on March 1989 in order to be introduced the concept of the International Commission on Radiological Protection (ICRP) in Publication 26 (1977) into the current regulation.

This report is made of a revised edition of previously reported in JAERI-M 82-021, "Isopleths of Surface Concentration and Surface Exposure Rate due to a Radioactive Cloud Released from a Stack" by our authors, as it is able to adapt new Guides.

It is made some alterations as follows, (1) to use international SI unit, (2) to use air absorbed dose rate instead of γ exposure dose, (3) to use unit release rate of 1 GBq/h instead of 1 Ci/h, (4) add to 30 m and 50 m for release height.

The graphs of isopleths of reduction scale 1/25,000 or 1/50,000 on the normal map are given with the release height (13 height of 0 to 200 m height at about 10 ~ 20 m intervals) and the atmospheric stabilities (6 classes) as parameters.

Calculations of air absorbed dose rate were made using Gaussian Plume Model modified the computer code GAMPUL developed by T. Hayashi and T. Shiraishi.

In the calculation of air concentrations and air absorbed dose rates, the vertical diffusion depths σ_z exceeded 1,000 m are assumed to 1,000 m according to the Meteorological Guide for the Safety Analysis of Nuclear Power Reactor (Japan Nuclear Safety Commission, 1982).

Comparison between with and without this limitation in σ_z is made in the case of downwind axial surface distributions.

Keywords: Isopleth, Air Concentration, Air Absorbed Dose, Radioactivity Calculation, Monitoring, Map, Cloud, Distribution, Gaussian Plume Model, Environment, Emergency, Accident

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- ((A): 1/25,000, (B): 1/50,000)

1. はじめに

大気中に放出された放射性雲の放射能濃度分布および放射性雲からの γ 線照射線量率分布については、筆者らが、JAERI-M 82-012「排気筒から放出される放射性雲の等濃度分布図および放射性雲からの等 γ 線照射線量率分布図」(1982年2月)として報告した。

その後、1989年に国際放射線防護委員会(ICRP)の1977年勧告を取入れて、各法律、指針が改定された。これに伴って、従来の単位系が国際単位系(SI)に変更されるとともに、 γ 線照射線量率は、「環境放射線モニタリングに関する指針」に示されるように、放射線測定としては空気吸収線量率として取扱うこととなった。

そのため、異常放出時において、放射能濃度分布および γ 線照射線量率分布を、容易に地図上に描くことにより、放出放射性物質による影響範囲を迅速に推定し、緊急時モニタリング計画の立案と実施を円滑に行うための資料として作成したJAERI-M 82-021を、現行の指針に適合させる必要が生じた。

本報告書は、JAERI-M 82-021を現行の指針に適合するように、(1)単位を国際単位(SI)に変更、(2) γ 線照射線量率を空気吸収線量率に変更、(3)単位放出率を1 GBq/hに変更、(4)30 mと50 mの放出高を追加し、緊急時環境線量情報予測システム「SPEEDI」⁽¹⁾等を備えていない事業所等においても、容易に事故の影響範囲の推定が行えるように分布図の縮尺を1/25,000および1/50,000とし、市販の国土地理院発行の地図上にそのまま表現できるように作成したものである。

ここに掲げた図は、排気筒の高さが0~200 mの間のほぼ10~20 m間隔の13放出高について、大気安定度A~Fの6クラス別に計算した結果である。空気吸収線量率の計算は、林、白石が作成した計算コードGAMPUL⁽²⁾を基本に、空気吸収線量率が計算できるよう変更して行った。大気中放射能濃度および空気吸収線量率の計算に当たっては、「発電用原子炉施設の安全解析に関する気象指針」⁽³⁾および「発電用軽水型原子炉施設周辺の線量目標値に対する評価指針」⁽⁴⁾に従い、煙の鉛直拡散幅 σ_z が1,000 mを超える場合は、1,000 mとした。 σ_z に制限を加えない場合の比較を風下軸上について行った。

2. 計算方法と結果

2.1 計算式

2.1.1 γ 線量率

放射性雲による地表付近の γ 線量率は、空気吸収線量率として(1)式により行った。

$$D(x, y, 0) = K_1 \cdot E \cdot \mu_a \int_0^\infty \int_{-\infty}^\infty \int_0^\infty \frac{e^{-\mu r}}{4 \pi r^2} B(\mu r) \cdot \chi(x', y', z')$$

1. はじめに

大気中に放出された放射性雲の放射能濃度分布および放射性雲からの γ 線照射線量率分布については、筆者らが、JAERI-M 82-012「排気筒から放出される放射性雲の等濃度分布図および放射性雲からの等 γ 線照射線量率分布図」(1982年2月)として報告した。

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本報告書は、JAERI-M 82-021を現行の指針に適合するように、(1)単位を国際単位(SI)に変更、(2) γ 線照射線量率を空気吸収線量率に変更、(3)単位放出率を1 GBq/hに変更、(4)30 mと50 mの放出高を追加し、緊急時環境線量情報予測システム「SPEEDI」⁽¹⁾等を備えていない事業所等においても、容易に事故の影響範囲の推定が行えるように分布図の縮尺を1/25,000および1/50,000とし、市販の国土地理院発行の地図上にそのまま表現できるように作成したものである。

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2.1.1 γ 線量率

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$$D(x, y, 0) = K_1 \cdot E \cdot \mu_a \int_0^\infty \int_{-\infty}^\infty \int_0^\infty \frac{e^{-\mu r}}{4 \pi r^2} B(\mu r) \cdot \chi(x', y', z') dz'$$

$$\times dx' dy' dz' \dots\dots\dots (1)$$

ただし、

$D(x, y, 0)$: 計算地点 $(x, y, 0)$ における空気吸収線量率 ($\mu\text{Gy/h}$)

K_1 : 空気吸収線量率への換算係数

$$K_1 = 4.46 \times 10^{-4} \left(\frac{\text{dis} \cdot \text{m}^3 \cdot \mu\text{Gy}}{\text{MeV} \cdot \text{Bq} \cdot \text{h}} \right)$$

E : γ 線の実効エネルギー (MeV/dis)

μ_a : 空気に対する γ 線の真吸収係数 (m^{-1})

μ : 空気に対する γ 線の全吸収係数 (m^{-1})

r : 放射性雲中の点 (x', y', z') から計算地点 $(x, y, 0)$ までの距離 (m)

$B(\mu r)$: 空気に対する γ 線の再生係数

$\chi(x', y', z')$: 放射性雲中の点 (x', y', z') における濃度 (Bq/m^3)

なお、 $B(\mu r)$ は、(2)式により求めた。

$$B(\mu r) = 1 + \alpha(\mu r) + \beta(\mu r)^2 + \gamma(\mu r)^3 \dots\dots\dots (2)$$

ただし、 μ_a 、 μ 、 α 、 β 、 γ については、0.5 MeV の γ 線に対する値を用い、以下のとおりとする。

$$\mu_a = 3.84 \times 10^{-3} (\text{m}^{-1}), \quad \mu = 1.05 \times 10^{-2} (\text{m}^{-1}), \quad \alpha = 1.000, \quad \beta = 0.4492, \\ \gamma = 0.0038$$

また、放射性雲の放射能濃度 χ は、(3)式に示すとおりである。

2.1.2 放射性雲の放射能濃度

放射性雲の放射能濃度は、以下の仮定に基づく Pasquill の式 (英国気象局:(3)式) により算出した。

- 1) 空気中における放射性物質の重力落下、沈着は考慮しない。
- 2) 放出時間を通じて風向は一定である。
- 3) 放射性物質の拡散による放射能濃度分布が、風向に垂直な面上、水平方向および垂直方向ともに、ガウス分布であるとする。

$$\chi(x, y, z) = \frac{Q}{2\pi \cdot 3600 \cdot u \cdot \sigma_y \cdot \sigma_z} \cdot \exp\left(-\frac{\lambda}{u} x\right) \cdot \exp\left(-\frac{y^2}{2\sigma_y^2}\right) \\ \times \left[\exp\left\{-\frac{(Z-H)^2}{2\sigma_z^2}\right\} + \exp\left\{-\frac{(Z+H)^2}{2\sigma_z^2}\right\} \right] \dots\dots\dots (3)$$

ただし、

$\chi(x, y, z)$: 計算地点 (x, y, z) における放射能濃度 (Bq/m^3)

Q : 放射性核種の放出率 (Bq/h)

λ : 対象とする放射性核種の物理的崩壊定数 (sec^{-1})

u : 放出点における平均風速 (m/s)

H : 放出高 (m)

σ_y, σ_z : 濃度分布の y および z 方向の拡がりのパラメータ (m)

x, y, z : 放出点を原点とする直角座標系 (風向方向を x 軸とする。)

なお, σ_y, σ_z は, 大気安定度毎に (4), (5) 式および Table 1 の値により算出した。

$$\sigma_y = 0.67775 \cdot \theta_0 \cdot X \cdot (5 - \log X) \quad \dots\dots\dots (4)$$

$$\sigma_z = \sigma_0 X^{(a_0 + a_1 \log X + a_2 (\log X)^2)} \quad \dots\dots\dots (5)$$

X : 軸上風下距離 (m)

また, 使用した大気安定度は, Table 2 で定義されるものである。以上の計算式により, 地表放射能濃度および γ 線量率の算出には, 計算コード GAMPUL を修正したものを使用した。

2.2 計算条件

地表放射能濃度および γ 線量率の算出は, 次の条件で行った。

- 1) $u = 1$ m/s
- 2) $Q = 1$ GBq/h
- 3) $E = 1$ MeV/dis
- 4) μ_a, μ は, 0.5 MeV のエネルギーに対する値を用いた。
- 5) σ_z は, 「発電用原子炉施設の安全解析に関する気象指針」(以下「気象指針」という) に基づき, σ_z が 1,000 m を超える場合には, 1,000 m として取扱った。
- 6) 拡散中の放射性核種の減衰は考慮しない。(3) 式において $\lambda = 0$)

また, 計算項目は, 次のとおりである。

- 1) 大気安定度: A ~ F
- 2) 放出高(H): 0, 10, 20, 30, 40, 50, 60, 80, 100, 120, 140, 150, 200 m の計 13 とおり
- 3) 縮尺 : 1 / 25,000, 1 / 50,000

2.3 計算結果

2.3.1 風下軸上分布

風下軸上の地表放射能濃度分布を Fig. 1-1 から Fig. 1-13 に, 地表 γ 線量率分布を Fig. 3-1 から Fig. 3-13 に, 放出高毎に大気安定度をパラメータとして示した。作図範囲は, 風下軸上 100 m から 100 km の範囲である。図中の実線は, 「気象指針」に基づき σ_z 値が 1,000 m 以上の場合は, 1,000 m として計算した結果を示し, 破線は σ_z を制限しないで計算した結果を示す。

2.3.2 等放射能濃度分布図および等 γ 線量率分布図

地表等放射能濃度分布図を Fig. 2-1-1 (A) から Fig. 2-13-6 (B) に, 地表等 γ 線量率分布図を Fig. 4-1-1 (A) から Fig. 4-13-6 (B) に, 放出高, 大気安定度および縮尺別に示す。作図範囲は, 濃度では, 1 / 25,000 で x 方向 0 ~ 6 km, y 方向 -2 ~ 2 km, 1 / 50,000 で x 方向 0 ~ 12 km, y 方向 -4 ~ 4 km であり, γ 線量率では, 1 / 25,000 で x 方向 -1 ~ 5 km, y 方向 -2 ~ 2 km, 1 / 50,000 で x 方向 -2 ~ 10 km, y 方向 -4 ~ 4 km である。

なお、濃度および γ 線量率の単位は、計算式((1), (3)式)では、 Bq/m^3 、 $\mu\text{Gy}/\text{h}$ であるが、Fig. 1-1～Fig. 2-13-6(B)では、作図上の都合により、 $\mu\text{Bq}/\text{cm}^3$ 、 nGy/h とした。

3. 図の使用方法

γ 線量率計算において、 $E=1\text{MeV}/\text{dis}$ の条件下で行ってあるので、この図を使用する場合は、次の3-1、3-2に示す補正を行う。

また、等放射能濃度分布図および等 γ 線量率分布図の縮尺を $1/25,000$ および $1/50,000$ とし、国土地理院発行の地図に合わせて作成してあるので、本計算による図のうち、その時の大気安定度および放出高にあった図を選び、地図上に、その時の風向と分布図の風下軸を重ね合わせ、下記の手法により値の補正を行えば、放射性雲からの影響評価が容易に可能である。

3.1 地表放射能濃度の補正

地表放射能濃度分布においては、(6)式の補正を行えばよい。

$$\chi(x, y, 0) = \chi_0(x, y, 0) \times Q/u \quad \dots\dots\dots (6)$$

ただし、 $\chi(x, y, 0)$: 実際の条件下での補正放射能濃度値 ($\mu\text{Bq}/\text{cm}^3$)

$\chi_0(x, y, 0)$: 図より読取った放射能濃度値 ($\mu\text{Bq}/\text{cm}^3$)

Q : 実際の条件下での放出率 (GBq/h)

u : " 風速 (m/s)

3.2 地表 γ 線量率の補正

地表 γ 線量率分布において、 μ_a 、 μ が γ 線エネルギーの関数となっているため、厳密には、 γ 線エネルギーに比例はしないが、通常の評価では(7)式により補正すれば十分である。

$$D(x, y, 0) = D_0(x, y, 0) \times Q \times E/u \quad \dots\dots\dots (7)$$

ただし、 $D(x, y, 0)$: 実際の条件下での補正 γ 線量率値 (nGy/h)

$D_0(x, y, 0)$: 図より読取った γ 線量率値 (nGy/h)

E : 実際の条件下での γ 線エネルギー (MeV/dis)

u : " 風速 (m/s)

Q : " 放出率 (GBq/h)

なお、正確な評価値が必要とされる場合は、参考文献(2), (5)にあるエネルギー修正係数を用いて、補正を行えばよい。

3.3 緊急時における予測線量当量の簡易推定法

緊急時等において、本報告書の γ 線量率値から予測外部全身線量当量を推定するには、次のよ

なお、濃度および γ 線量率の単位は、計算式((1), (3)式)では、 Bq/m^3 、 $\mu\text{Gy}/\text{h}$ であるが、Fig. 1-1～Fig. 2-13-6(B)では、作図上の都合により、 $\mu\text{Bq}/\text{cm}^3$ 、 nGy/h とした。

3. 図の使用方法

γ 線量率計算において、 $E=1\text{MeV}/\text{dis}$ の条件下で行ってあるので、この図を使用する場合は、次の3-1、3-2に示す補正を行う。

また、等放射能濃度分布図および等 γ 線量率分布図の縮尺を $1/25,000$ および $1/50,000$ とし、国土地理院発行の地図に合わせて作成してあるので、本計算による図のうち、その時の大気安定度および放出高にあった図を選び、地図上に、その時の風向と分布図の風下軸を重ね合わせ、下記の手法により値の補正を行えば、放射性雲からの影響評価が容易に可能である。

3.1 地表放射能濃度の補正

地表放射能濃度分布においては、(6)式の補正を行えばよい。

$$\chi(x, y, 0) = \chi_0(x, y, 0) \times Q/u \quad \dots\dots\dots (6)$$

ただし、 $\chi(x, y, 0)$: 実際の条件下での補正放射能濃度値 ($\mu\text{Bq}/\text{cm}^3$)

$\chi_0(x, y, 0)$: 図より読取った放射能濃度値 ($\mu\text{Bq}/\text{cm}^3$)

Q : 実際の条件下での放出率 (GBq/h)

u : " 風速 (m/s)

3.2 地表 γ 線量率の補正

地表 γ 線量率分布において、 μ_a 、 μ が γ 線エネルギーの関数となっているため、厳密には、 γ 線エネルギーに比例はしないが、通常の評価では(7)式により補正すれば十分である。

$$D(x, y, 0) = D_0(x, y, 0) \times Q \times E/u \quad \dots\dots\dots (7)$$

ただし、 $D(x, y, 0)$: 実際の条件下での補正 γ 線量率値 (nGy/h)

$D_0(x, y, 0)$: 図より読取った γ 線量率値 (nGy/h)

E : 実際の条件下での γ 線エネルギー (MeV/dis)

u : " 風速 (m/s)

Q : " 放出率 (GBq/h)

なお、正確な評価値が必要とされる場合は、参考文献(2)、(5)にあるエネルギー修正係数を用いて、補正を行えばよい。

3.3 緊急時における予測線量当量の簡易推定法

緊急時等において、本報告書の γ 線量率値から予測外部全身線量当量を推定するには、次のよ

うにして行うことができる⁽⁶⁾⁽⁷⁾。

$$H = k \times D_0(x, y, 0) \times Q \times E / u \times T$$

ただし、

- H : 予測外部全身線量当量 (nSv)
 K : 空気吸収線量から全身線量当量への換算係数 1 (Sv/Gy)
 $D_0(x, y, 0)$: 図より読取った γ 線量率値 (nGy/h)
 Q : 実際の条件下での放出率 (GBq/h)
 E : " γ 線エネルギー (MeV/dis)
 u : " 風速 (m/s)
 T : 予測放出時間 (h)

参 考 文 献

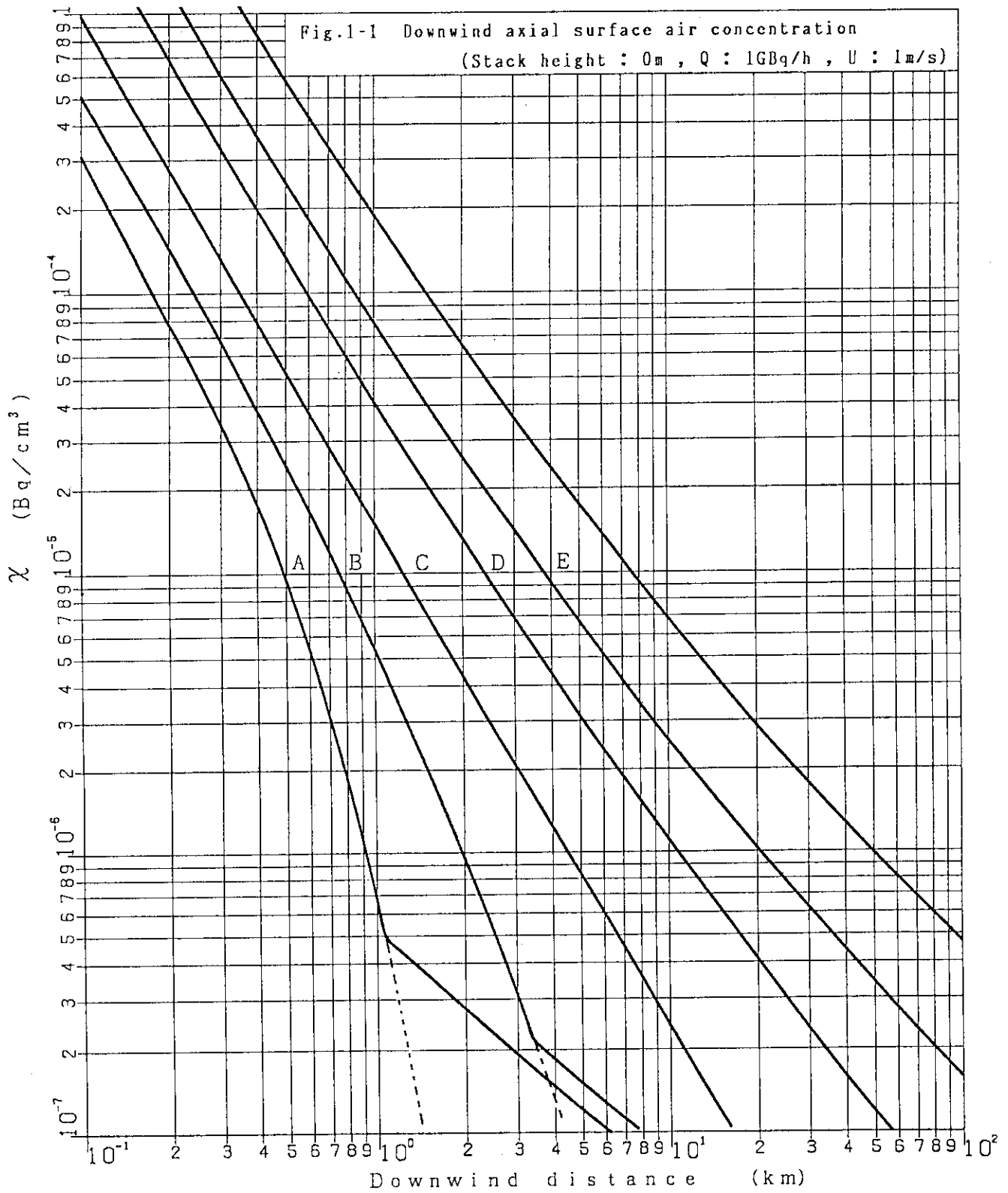
- (1) Kazuhiko IMAI 他：SPEEDI：A Computer Code System for the Real-Time Prediction of Radiation Dose to the Public due to an Accidental Release, JAERI 1297 (1985).
- (2) 林 隆, 白石忠男：排気筒から放出される放射性雲からの γ 線照射線量率, JAERI-M 8793 (1980).
- (3) 原子力安全委員会：発電用原子炉施設の安全解析に関する気象指針, 原子力安全委員会決定 昭和57年1月28日 (平成元年3月27日一部改訂)
- (4) 原子力安全委員会：発電用軽水型原子炉施設周辺の線量目標値に対する評価指針, 昭和51年9月28日 (平成元年3月27日一部改訂).
- (5) 今井和彦, 飯島敏哲, 角田道生：点源から放出される放射性雲からの γ 線照射分布計算図, JAERI-1189 (1970)
- (6) 原子力安全委員会：原子力発電所等周辺の防災対策について, 昭和55年6月 (平成元年3月一部改訂)
- (7) 原子力安全委員会：緊急時環境放射線モニタリング指針, 昭和59年6月 (平成元年3月一部改訂).

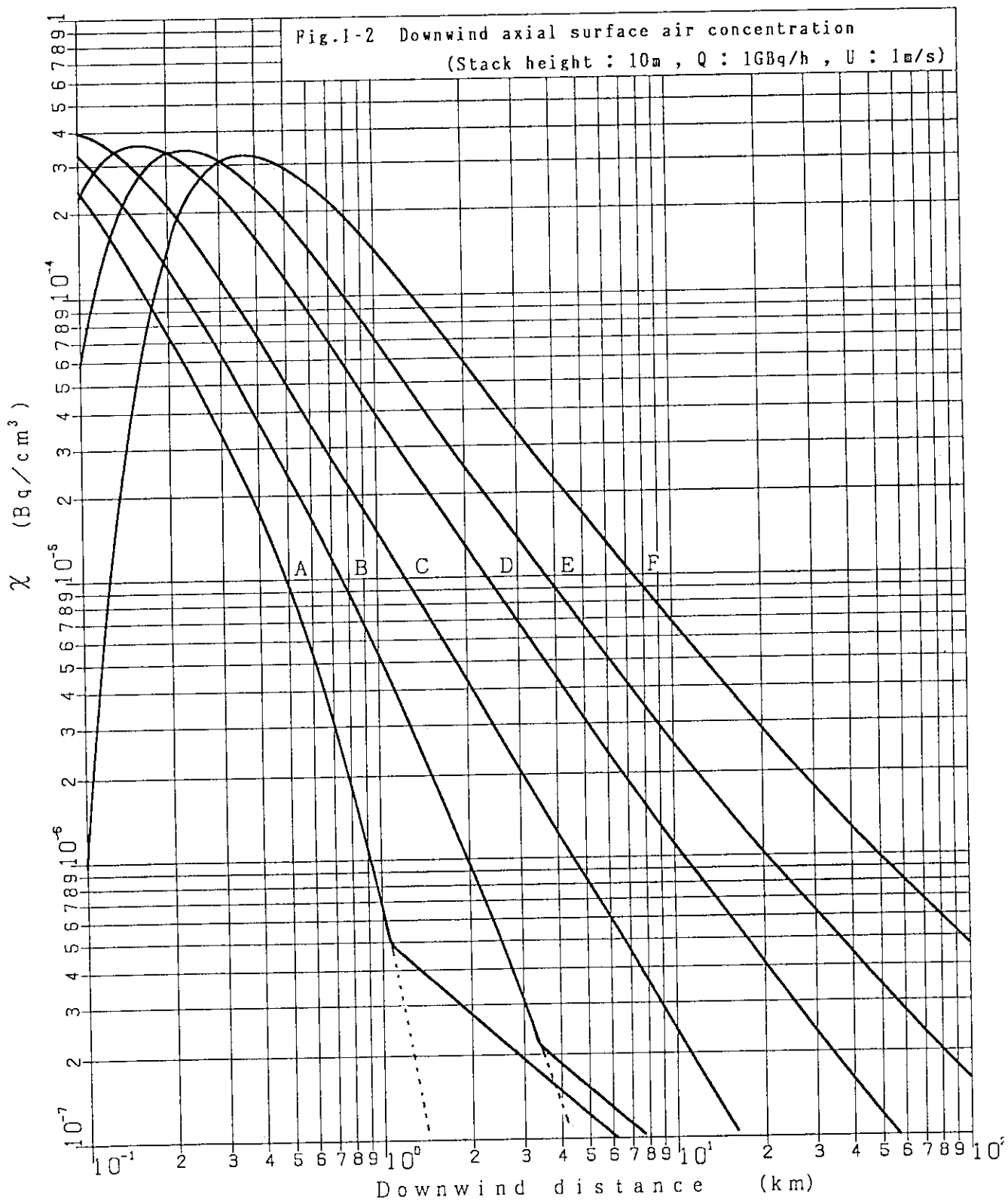
Table 1 Constants in the formulae of σ_y and σ_z

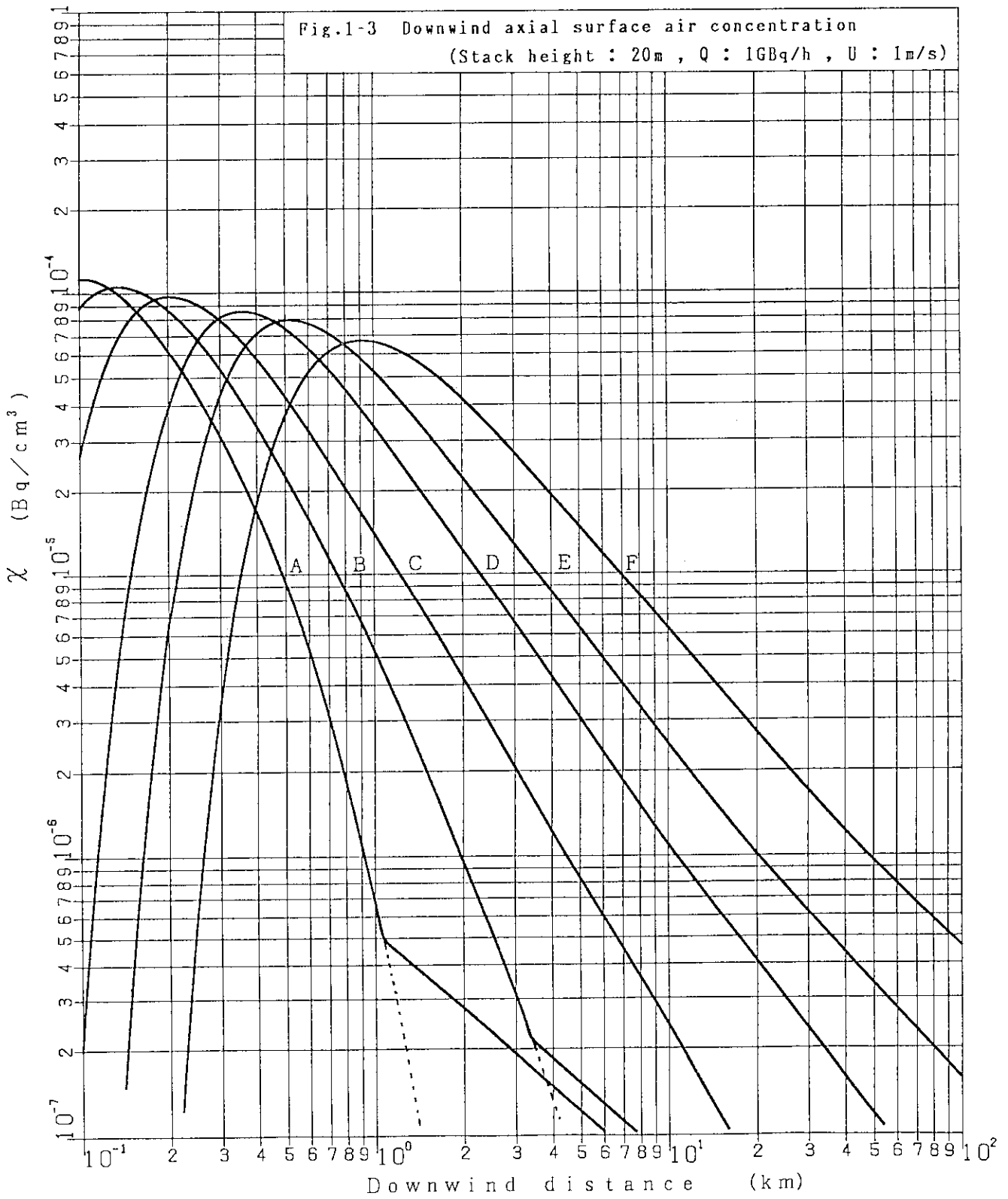
Stability	$\sigma_y,$ θ_0	$\sigma_z, x \geq 0.2\text{km}$				$\sigma_z, x < 0.2\text{km}$ $a_1 = a_2 = 0$	
		σ_0	a_0	a_1	a_2	σ_0	a_0
A	50	768.1	3.9077	3.898	1.7330	165.0	1.07
B	40	122.0	1.4132	0.49523	0.12772	83.7	0.894
C	30	58.1	0.8916	-0.001649	0.0	58.0	0.891
D	20	31.7	0.7626	-0.095108	0.0	33.0	0.854
E	15	22.2	0.7117	-0.12697	0.0	24.4	0.854
F	10	13.8	0.6582	-0.1227	0.0	15.5	0.822

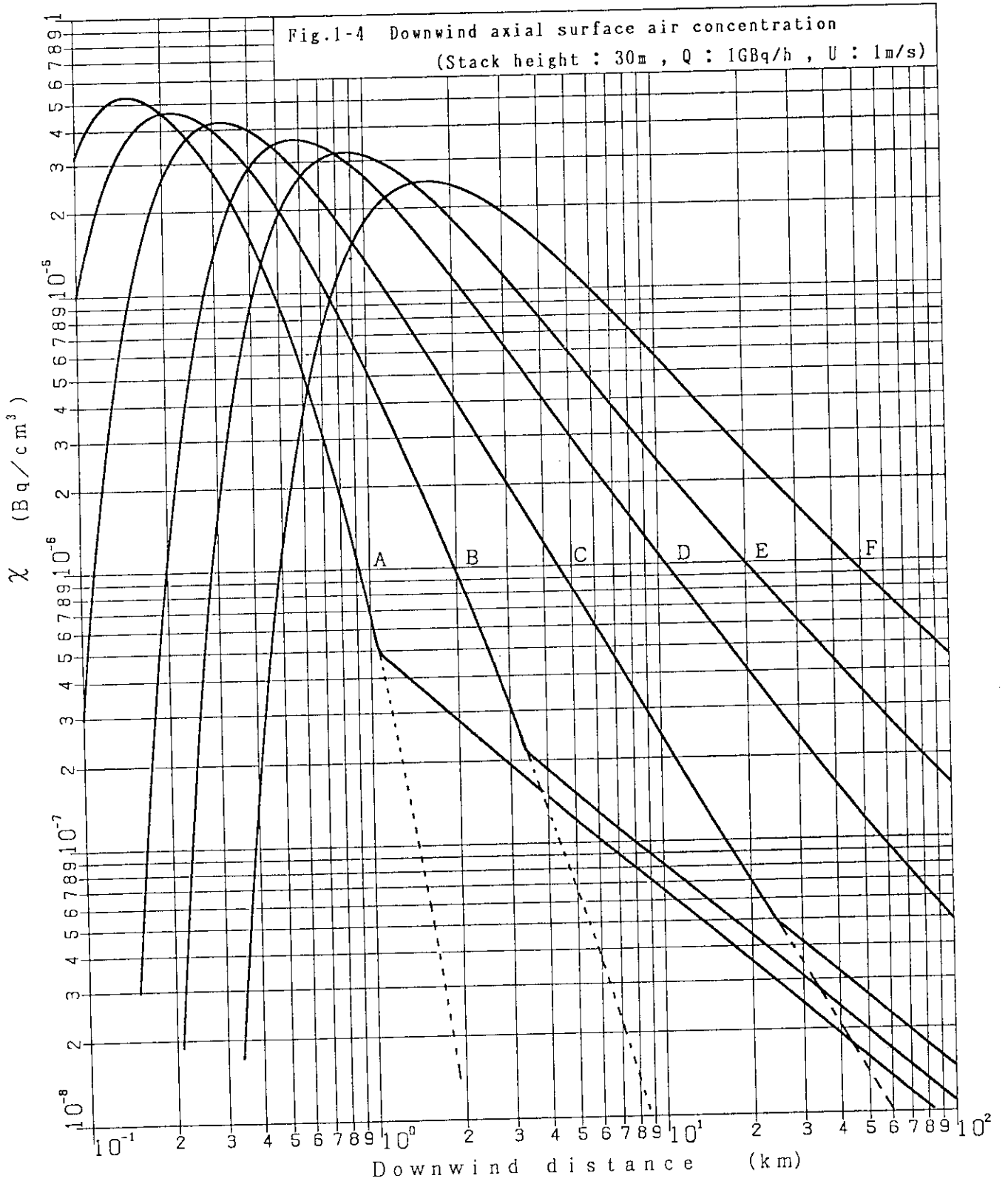
Table 2 Atmospheric stability classification

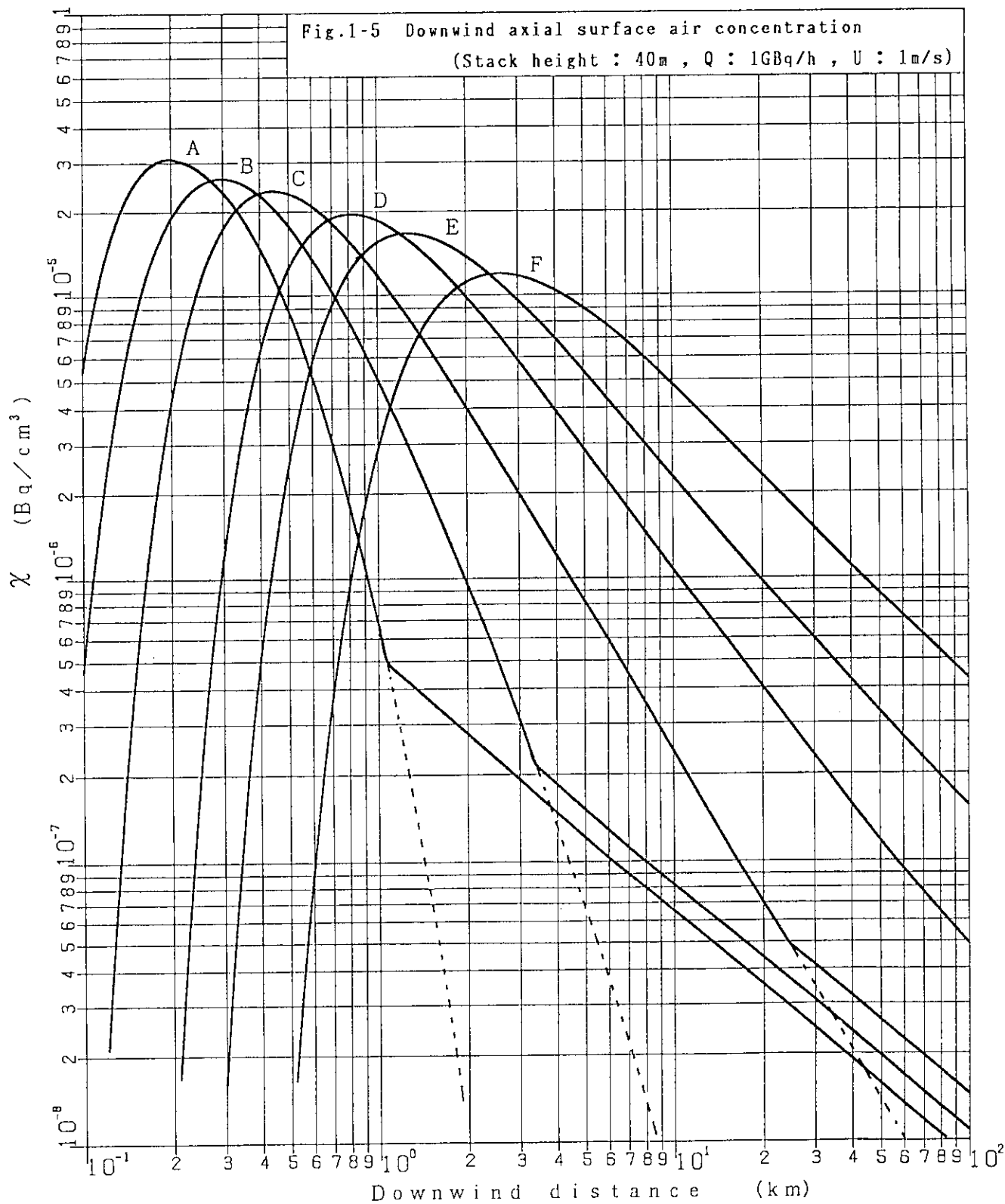
Wind speed (u) m/s	Daytime				Night		
	Solar radiation (T) (kW/m ²)				Net radiation (Q) (kW/m ²)		
	T>0.60	0.60>T ≥0.30	0.30>T ≥0.15	0.15>T	Q> -0.020	-0.020> Q≥-0.040	-0.040 >Q
u<2	A	A-B	B	D	D	G	G
2≤u<3	A-B	B	C	D	D	E	F
3≤u<4	B	B-C	C	D	D	D	E
4≤u<6	C	C-D	D	D	D	D	D
6≤u	C	D	D	D	D	D	D

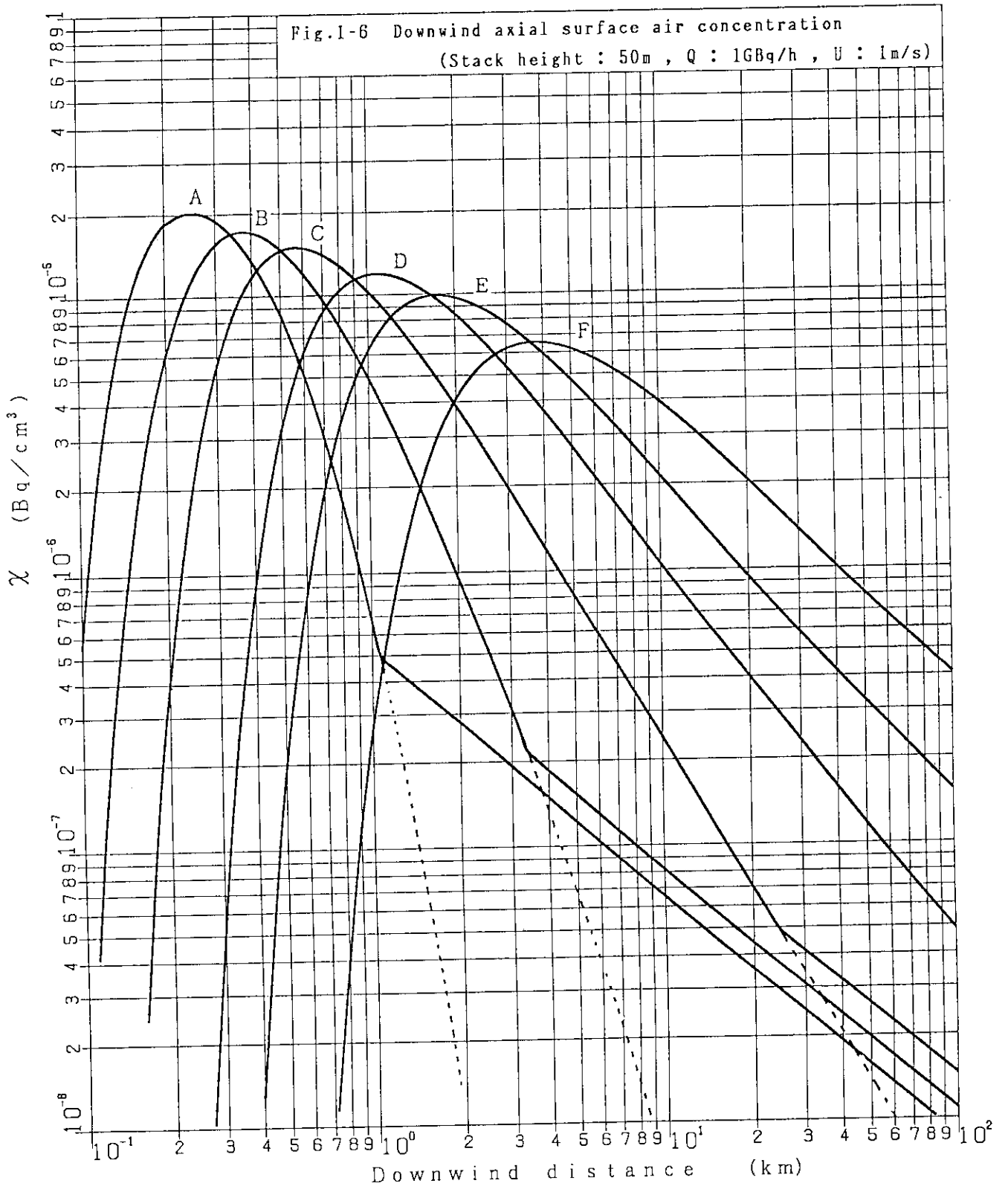


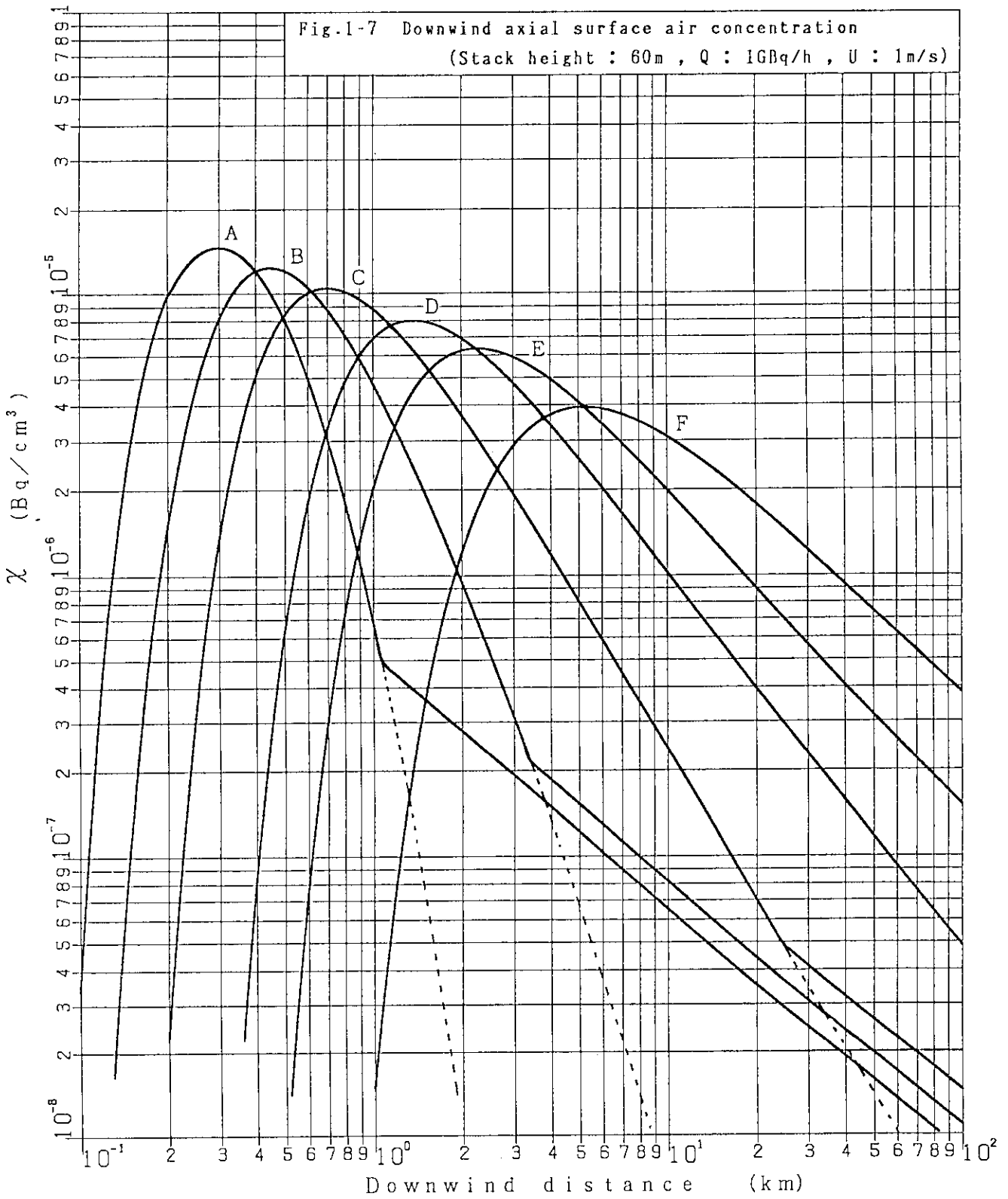


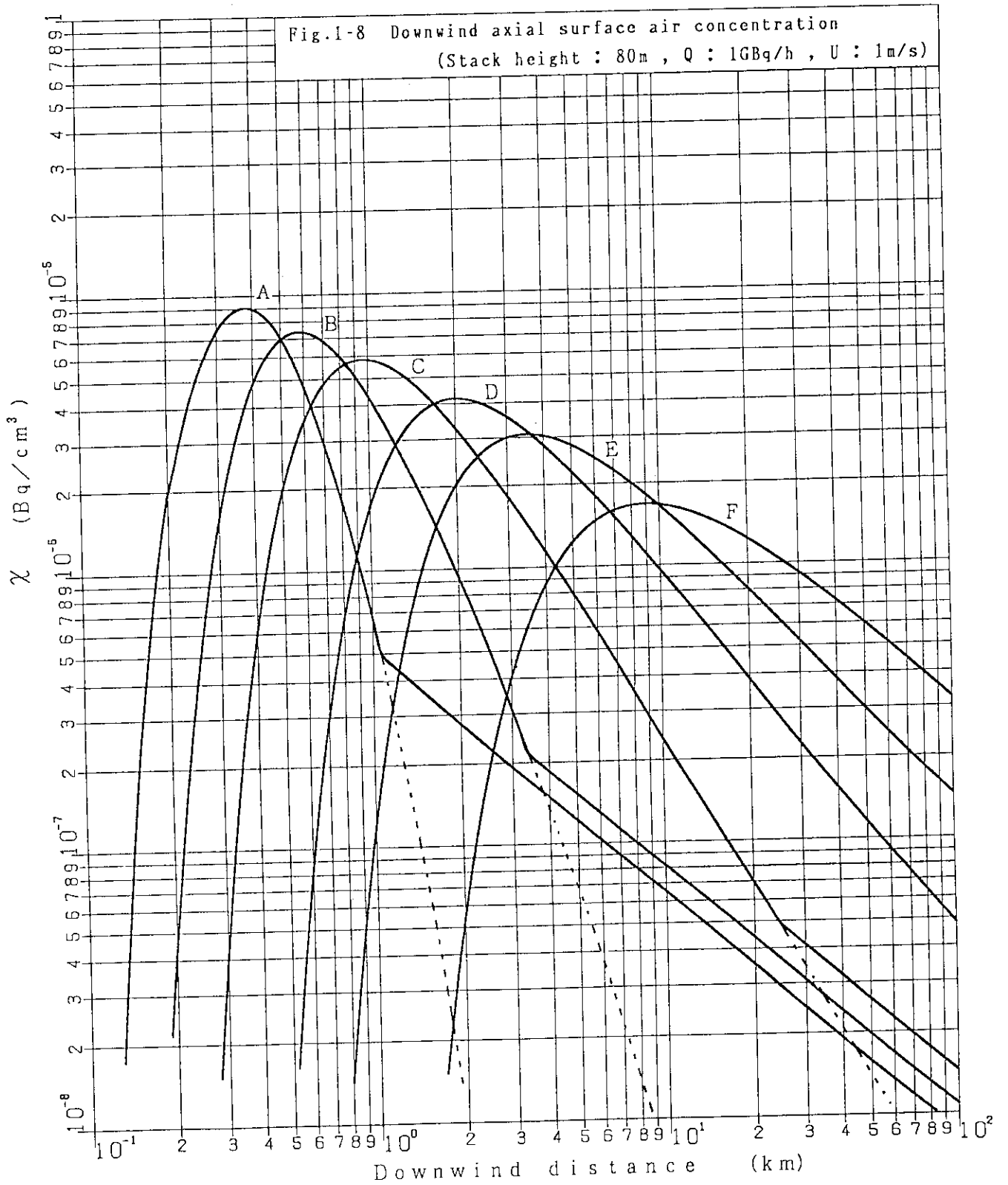


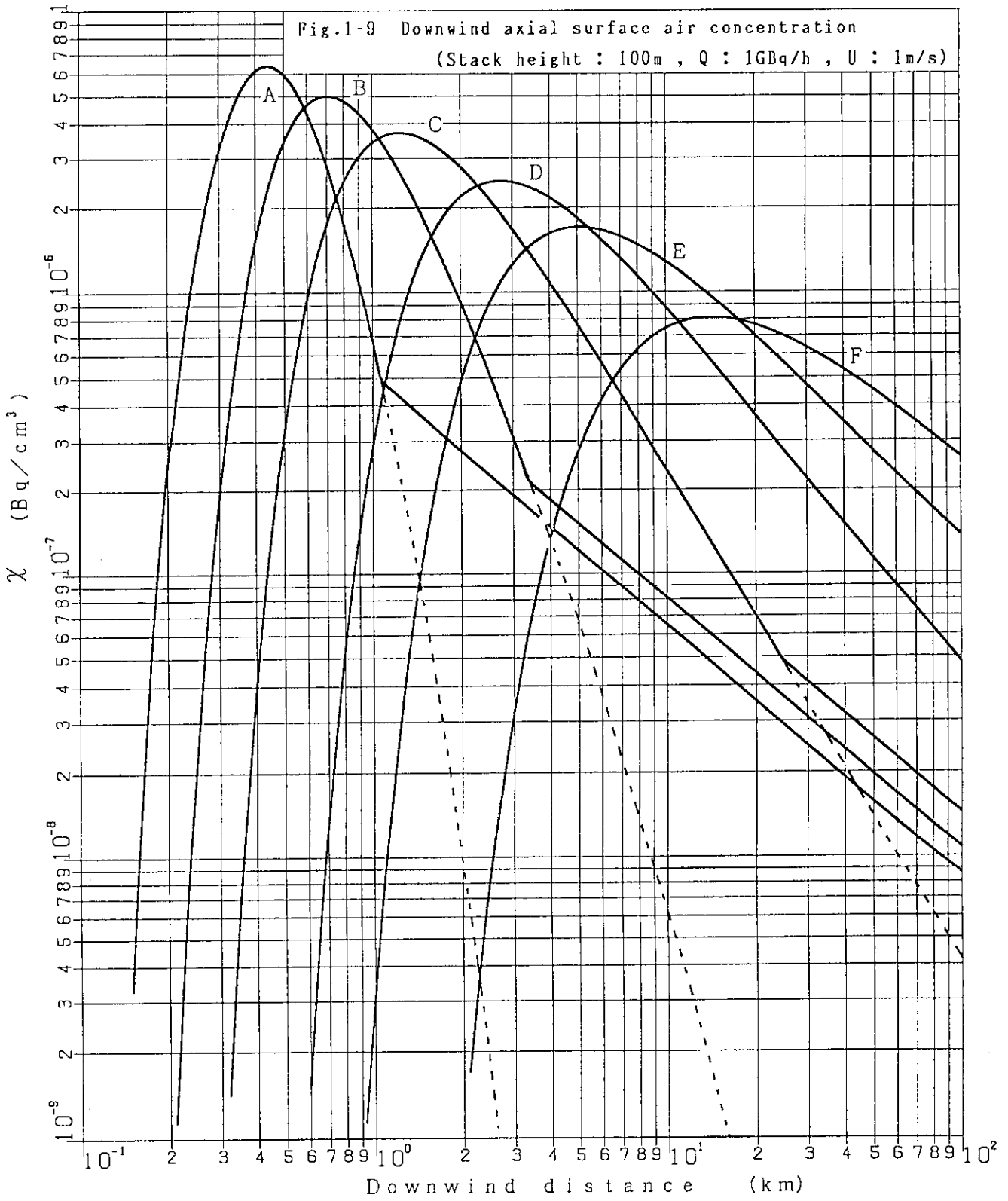


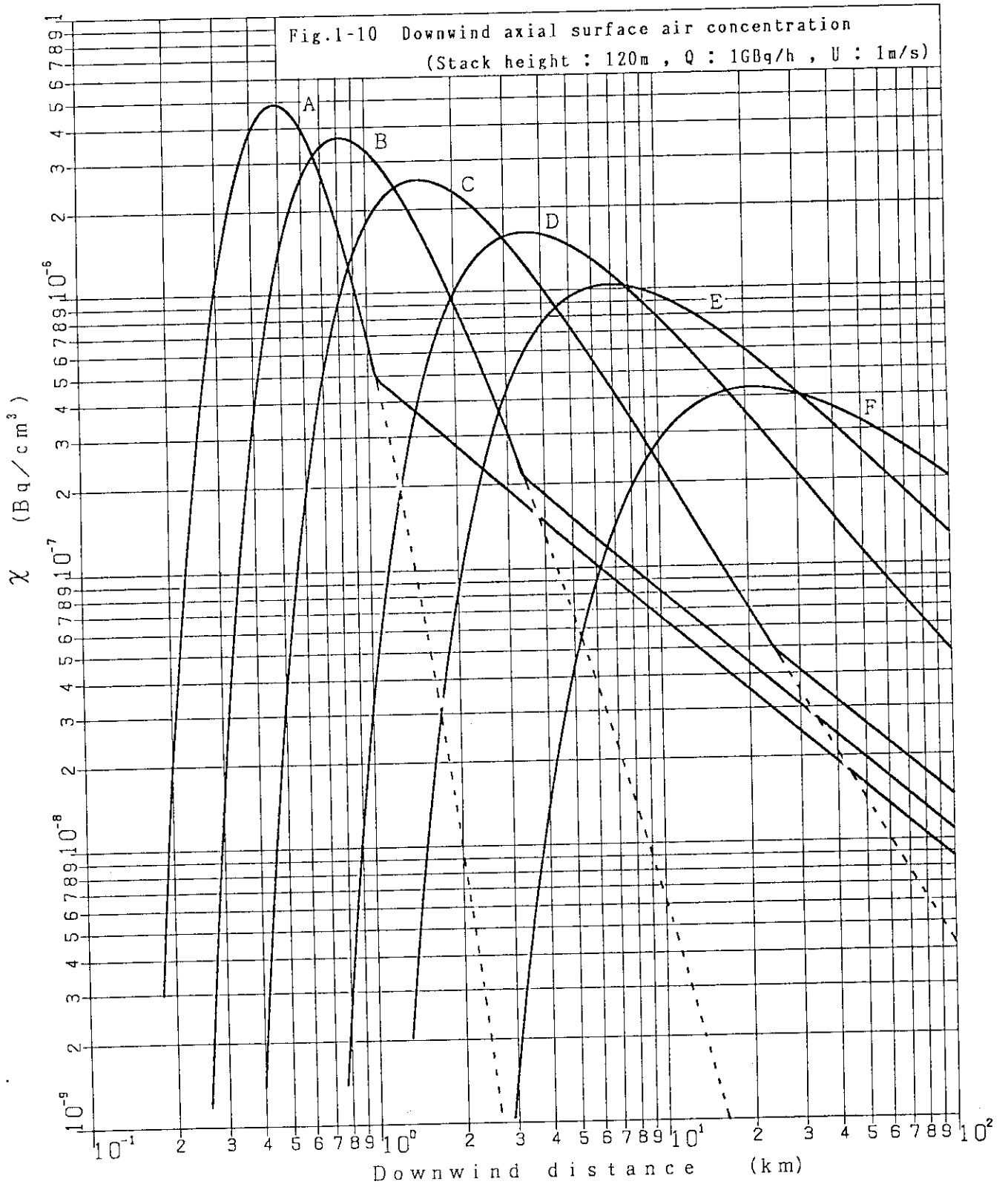


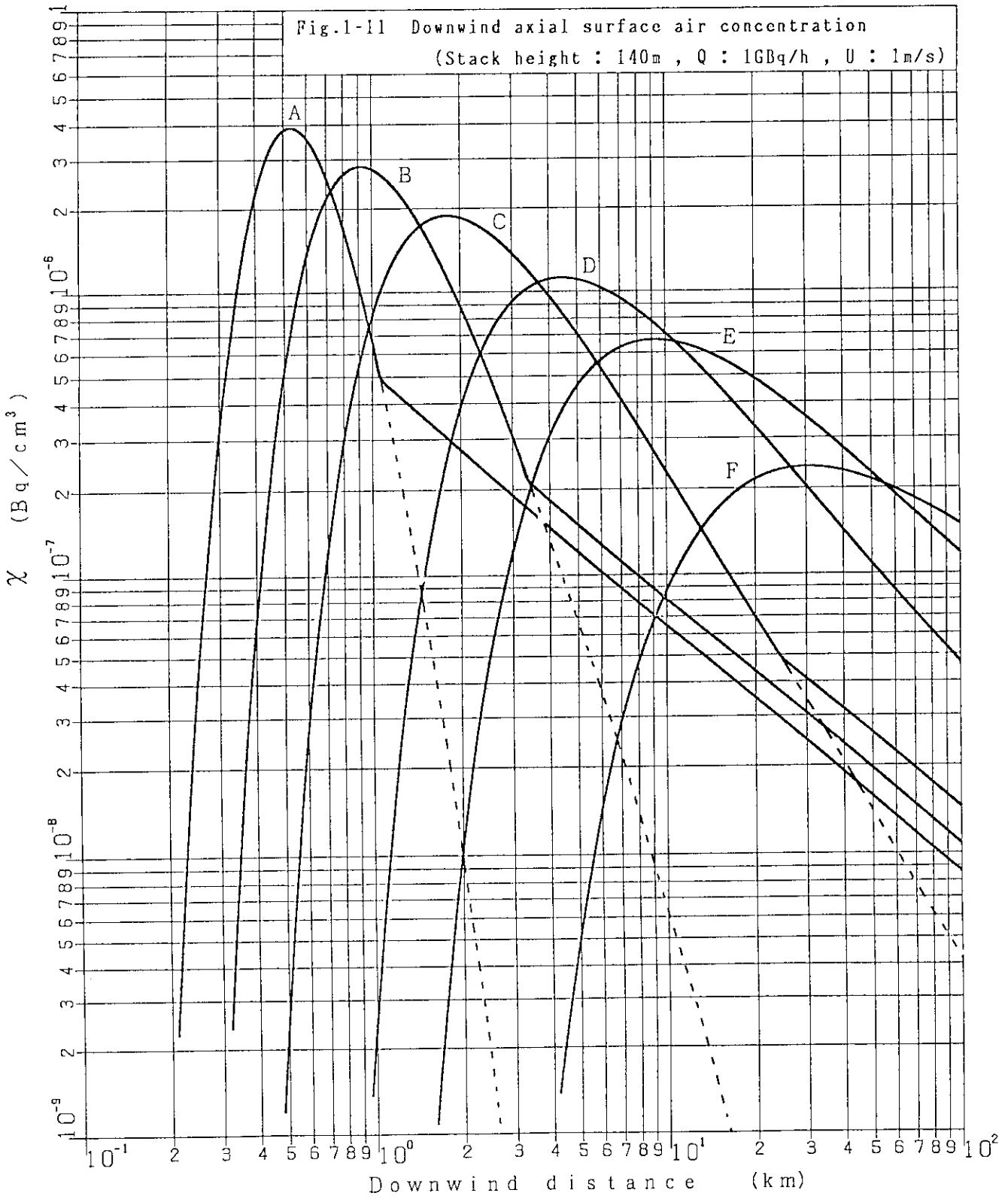


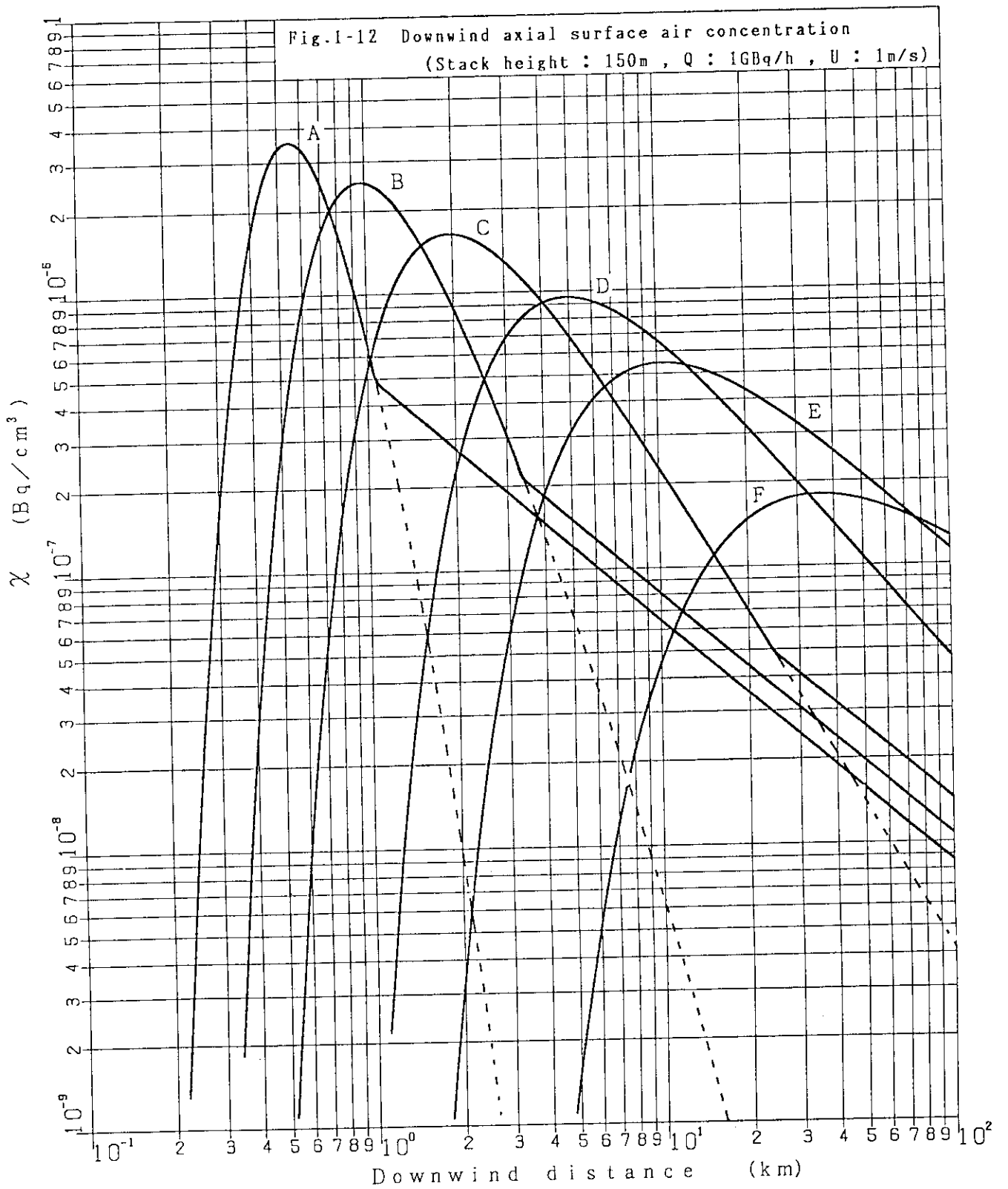


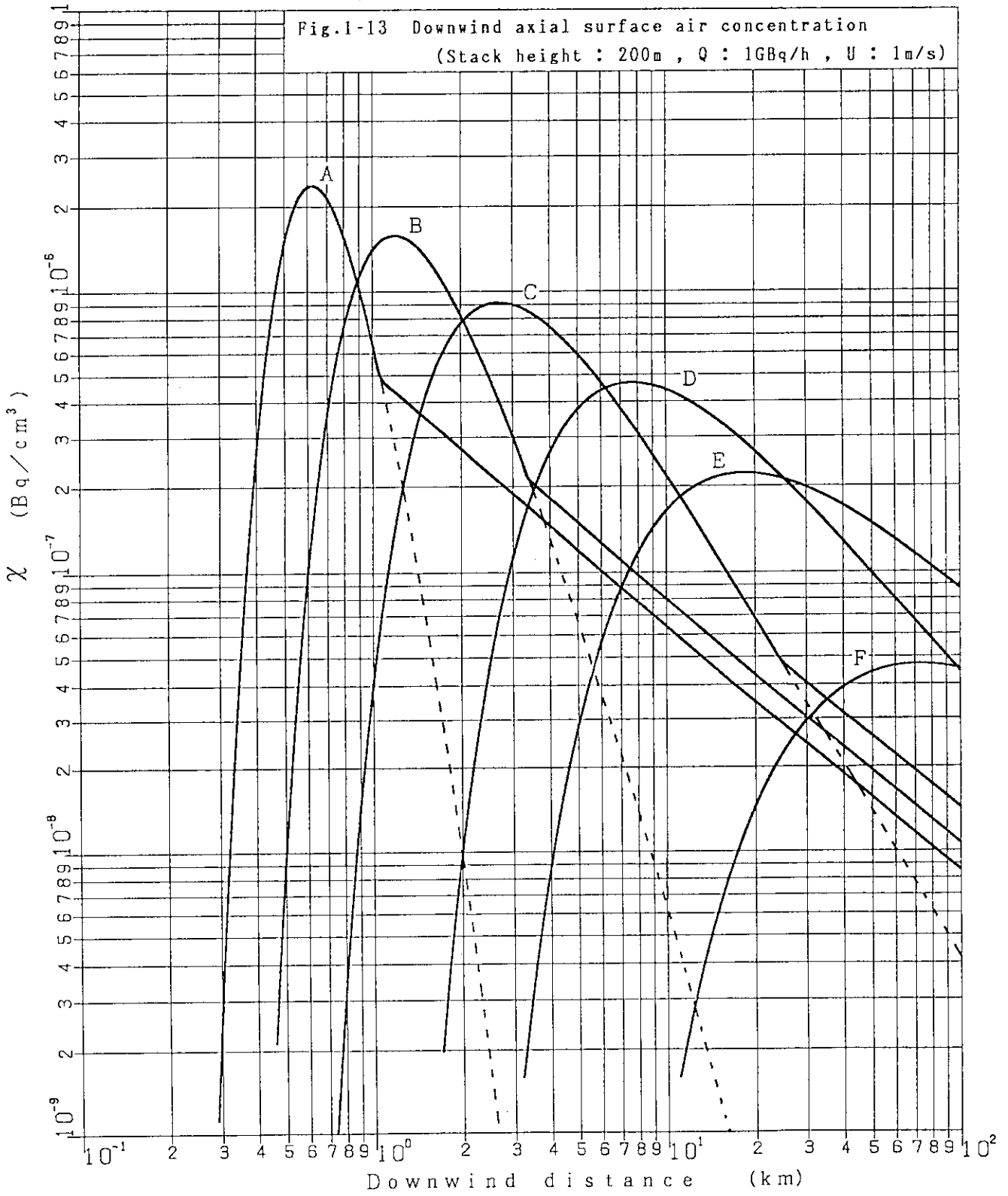












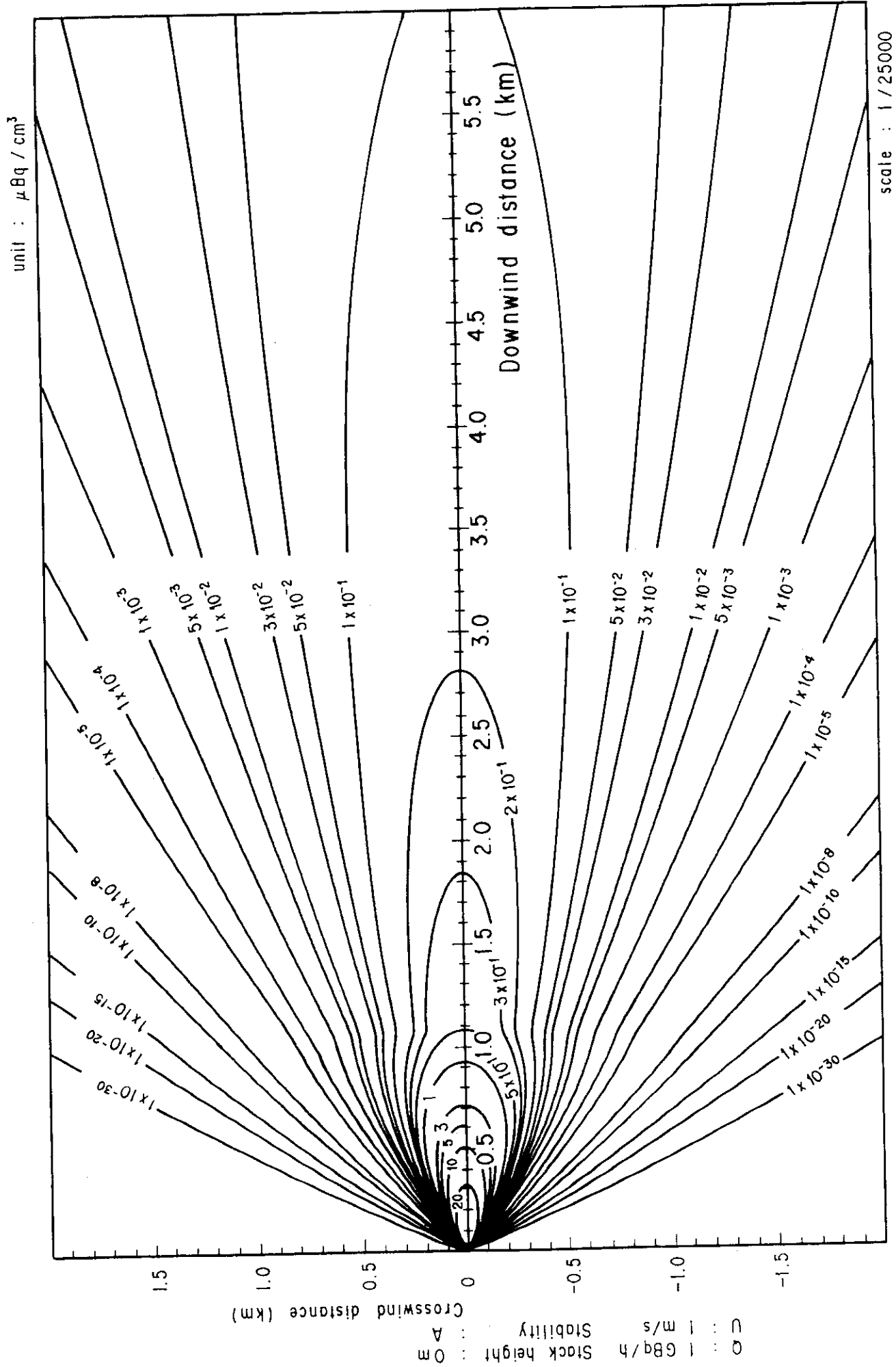


Fig. 2-1-1 (A) Isopleths of surface air concentration

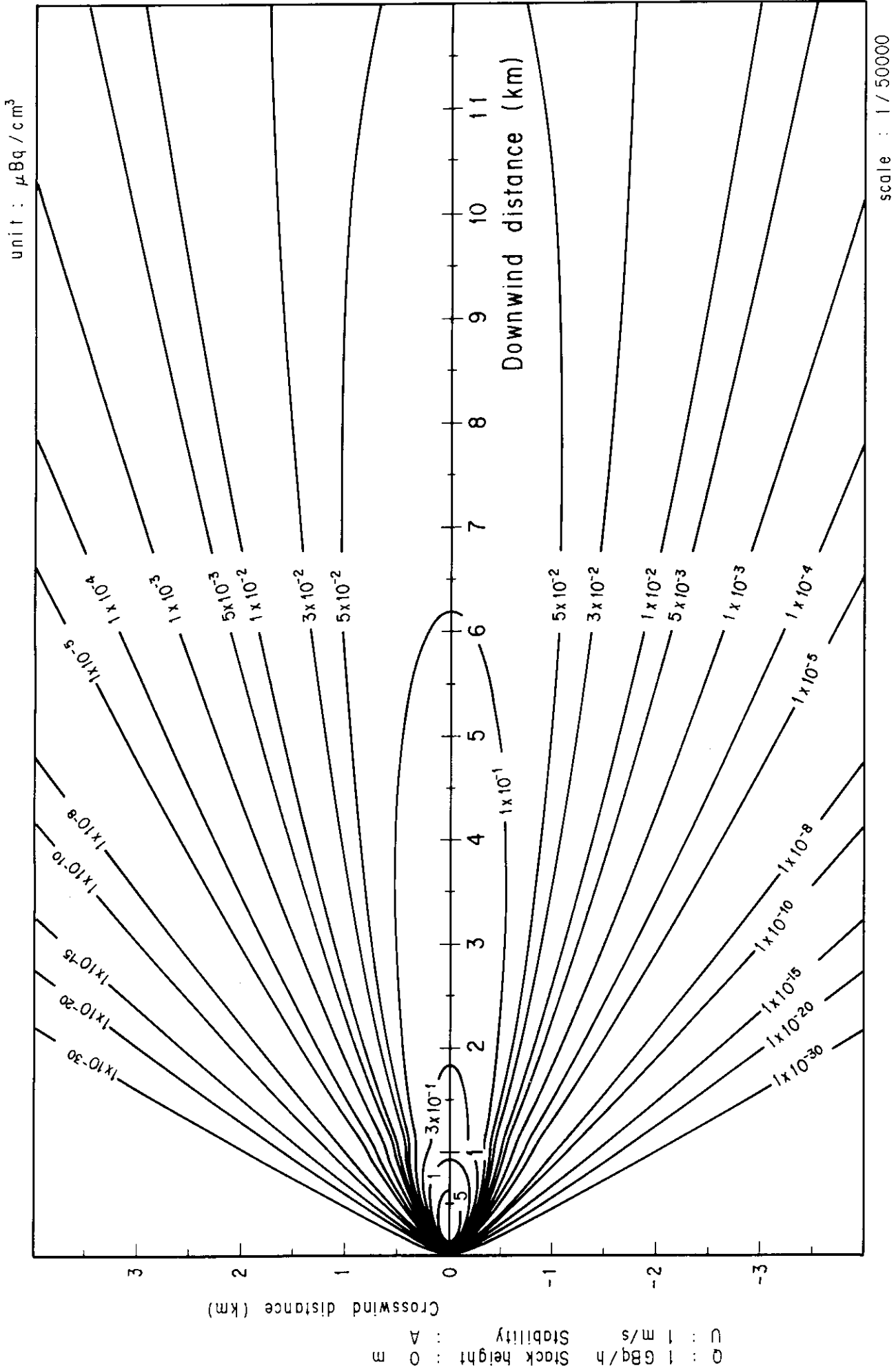


Fig.2-1-1 (B) Isopleths of surface air concentration

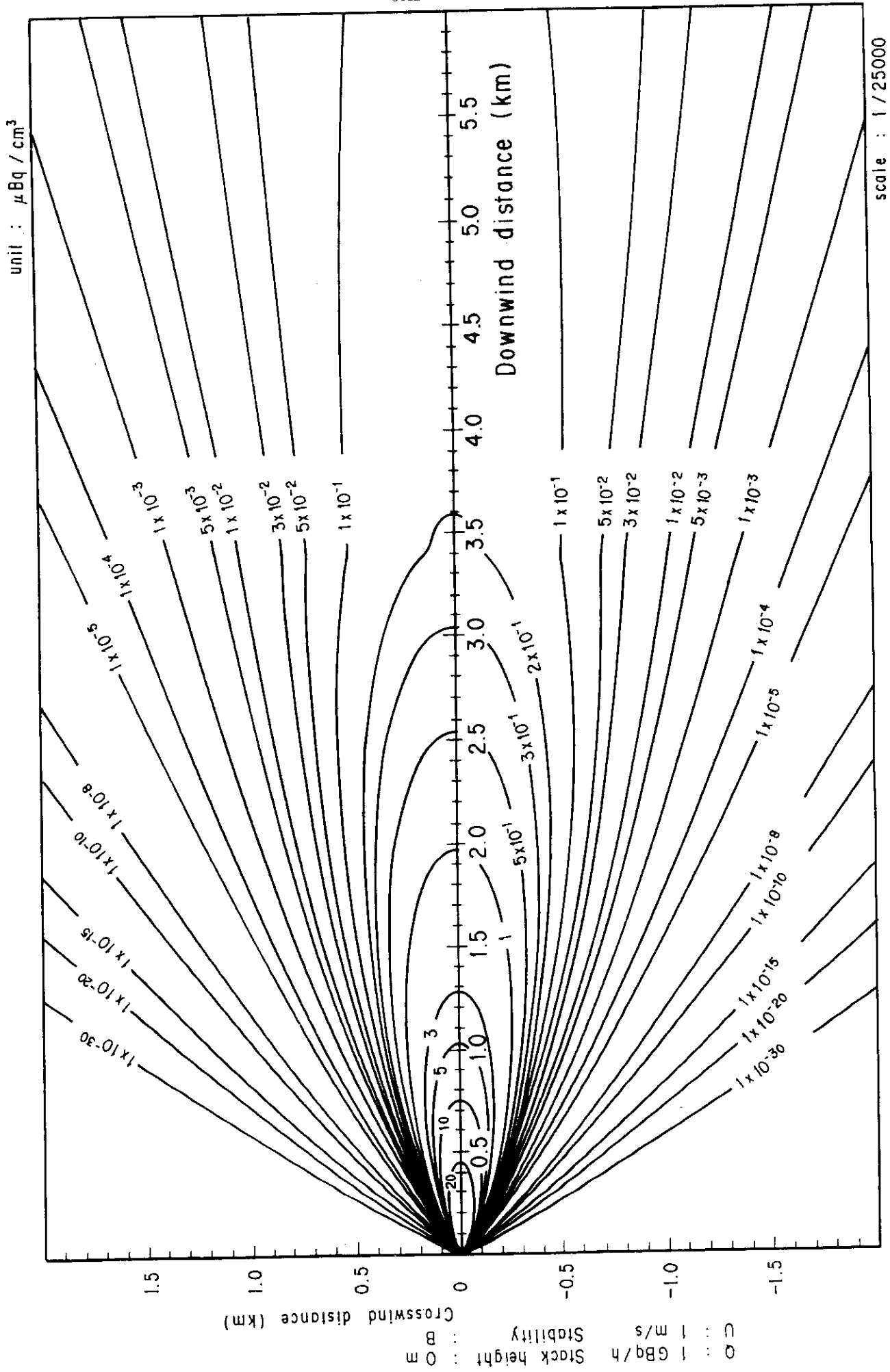


Fig. 2-1-2 (A) Isopleths of surface air concentration

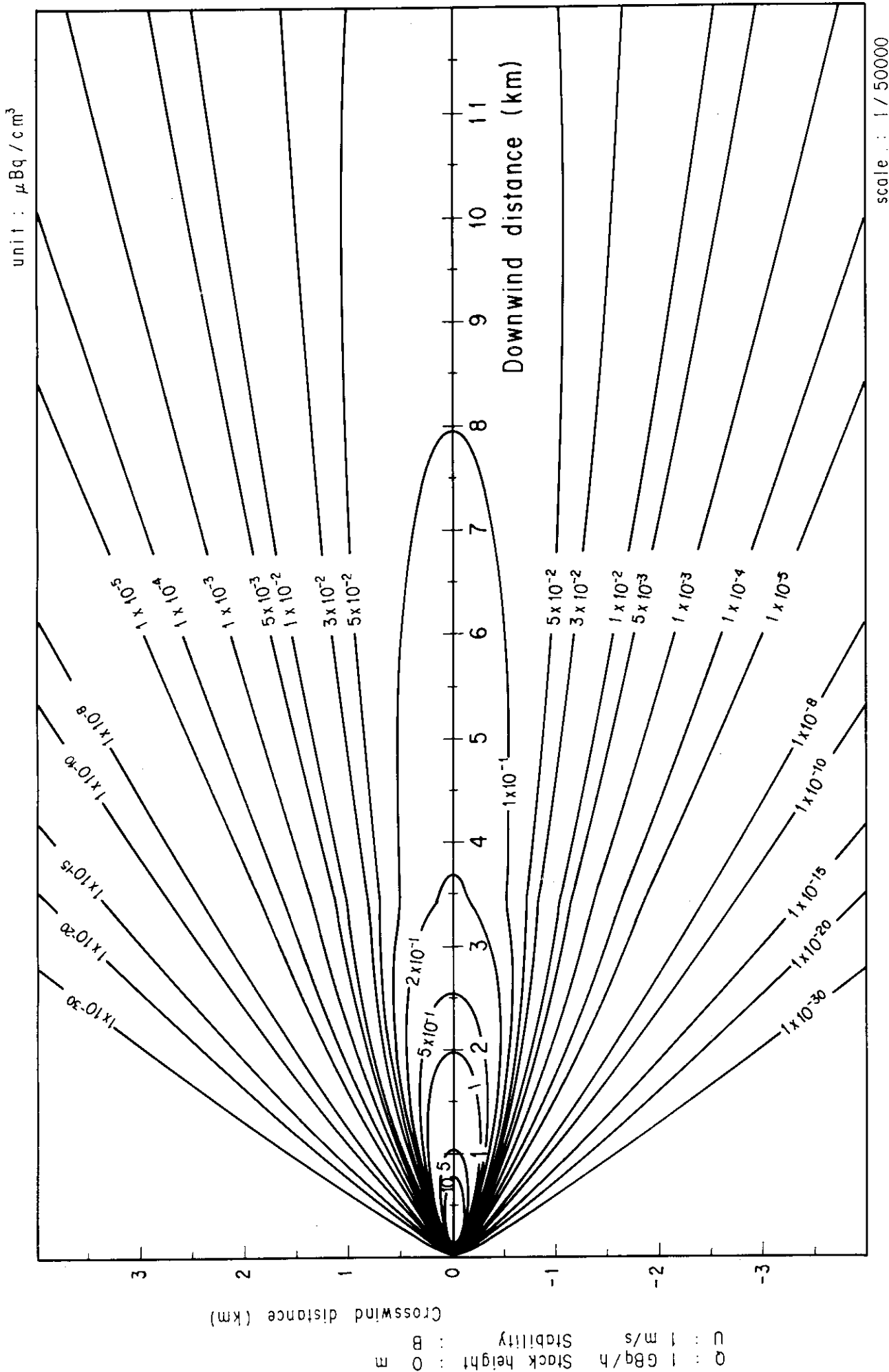


Fig. 2-1-2 (B) Isopleths of surface air concentration

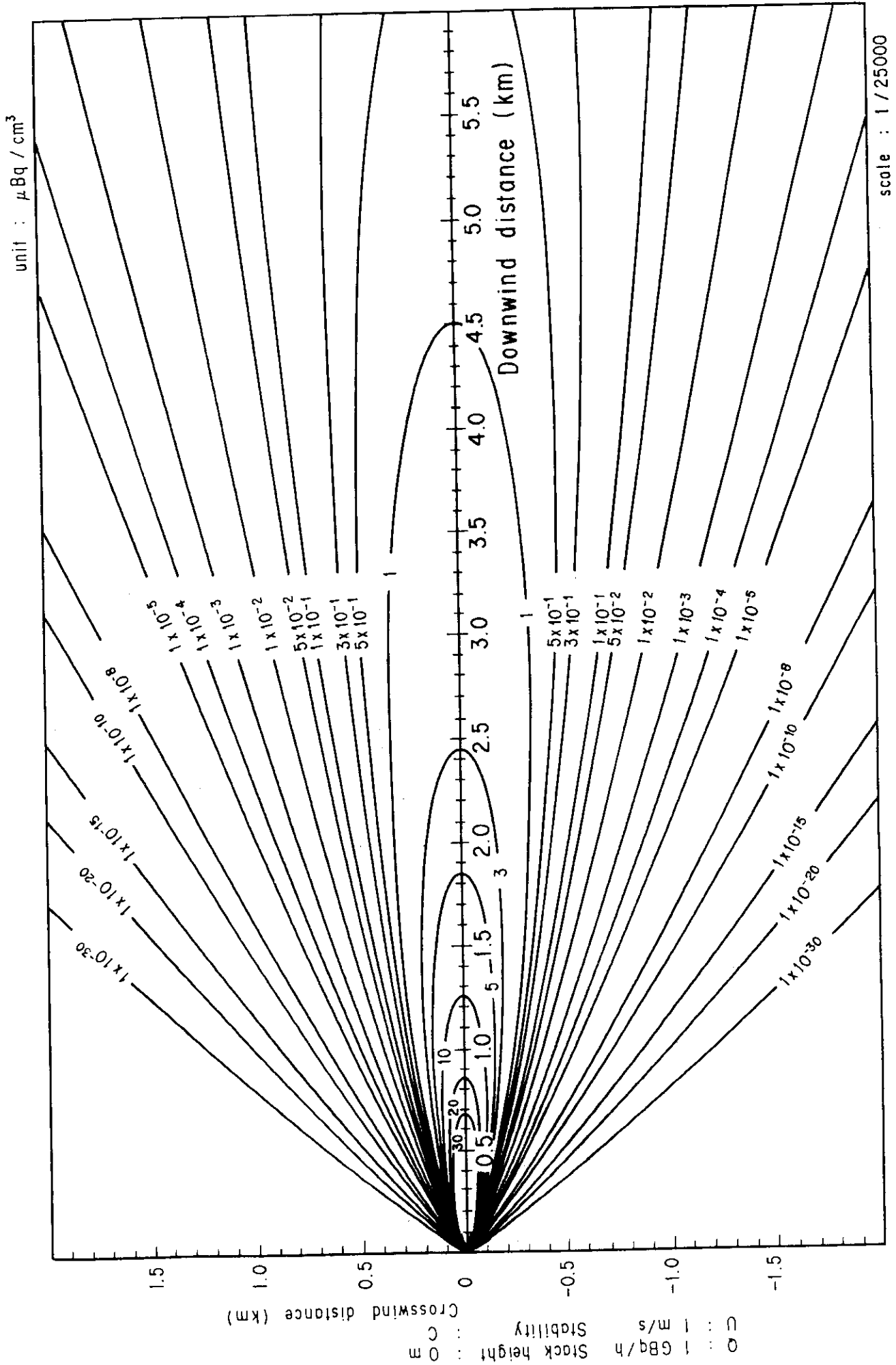


Fig. 2-1-3 (A) Isopleths of surface air concentration

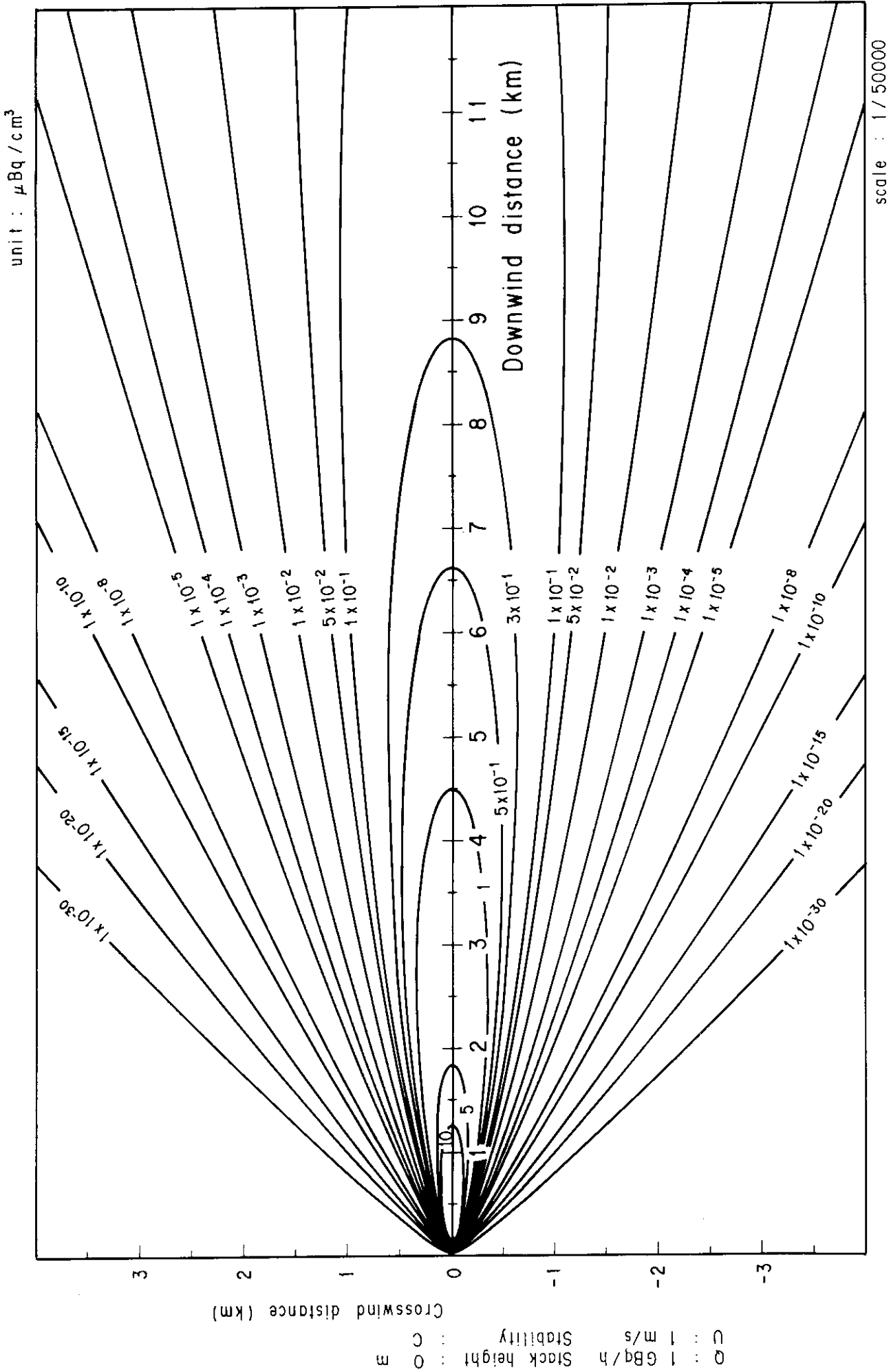


Fig. 2-1-3 (B) Isopleths of surface air concentration

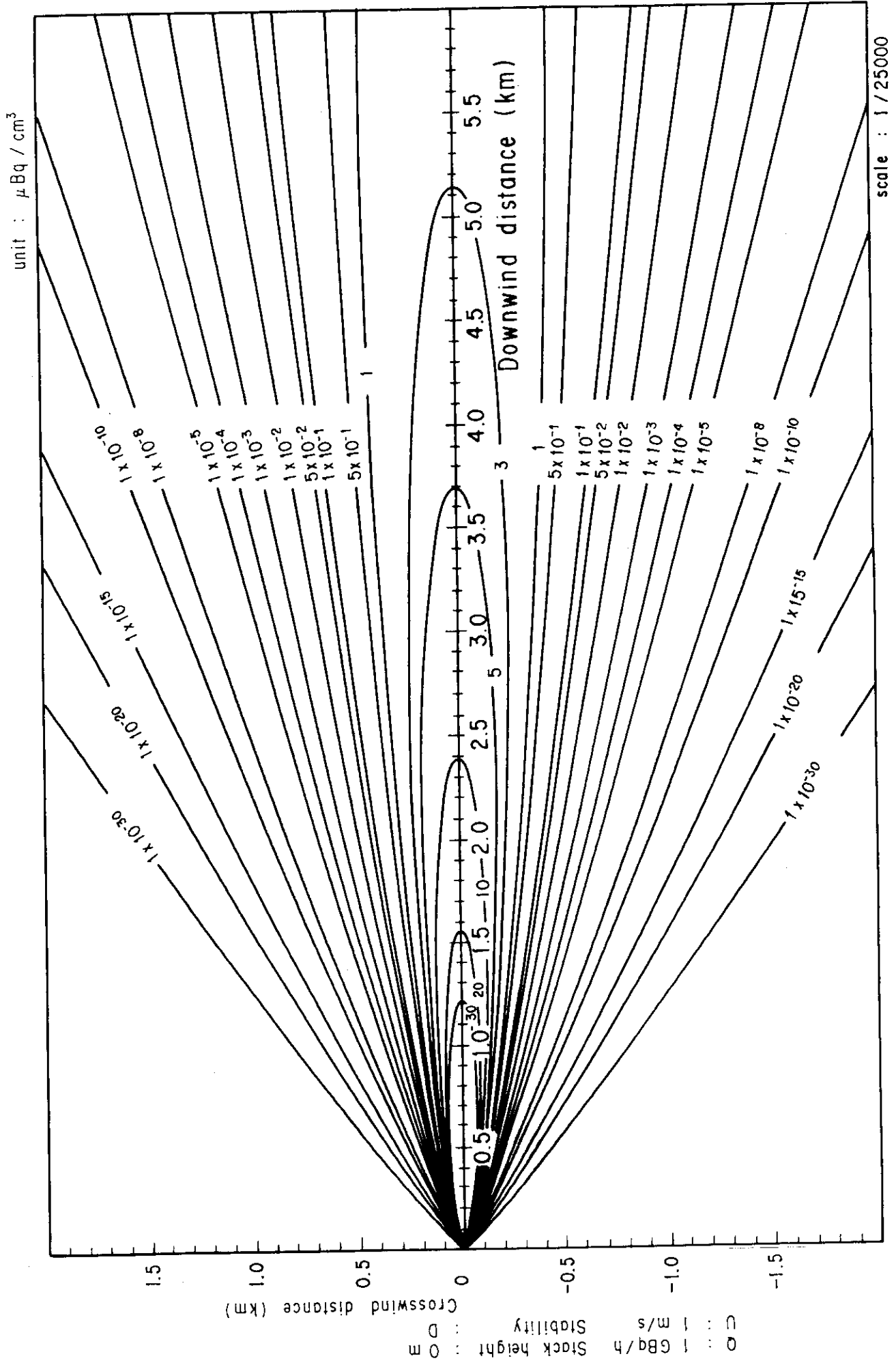


Fig. 2-1-4 (A) Isopleths of surface air concentration

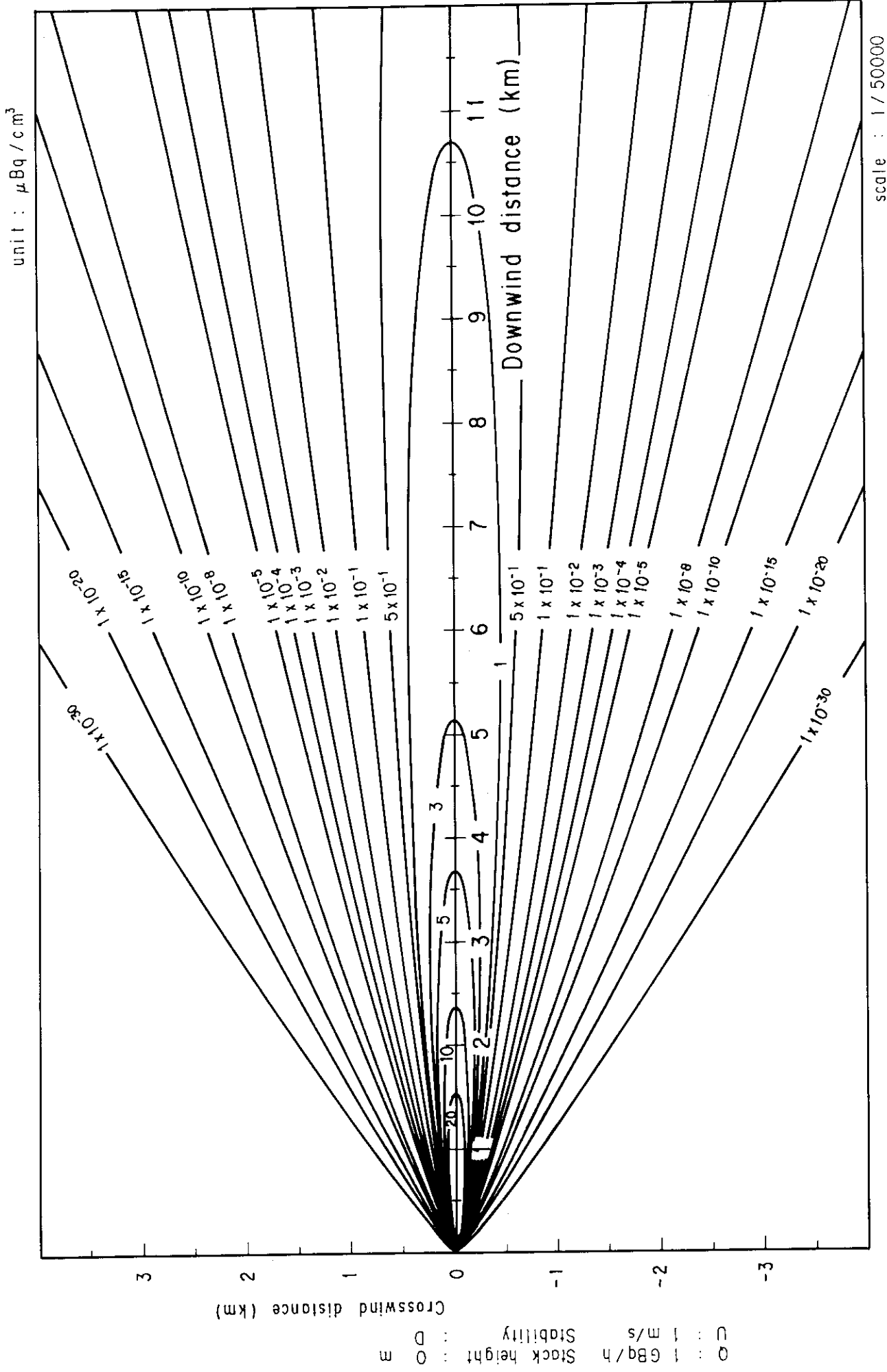


Fig. 2-1-4 (B) Isopleths of surface air concentration

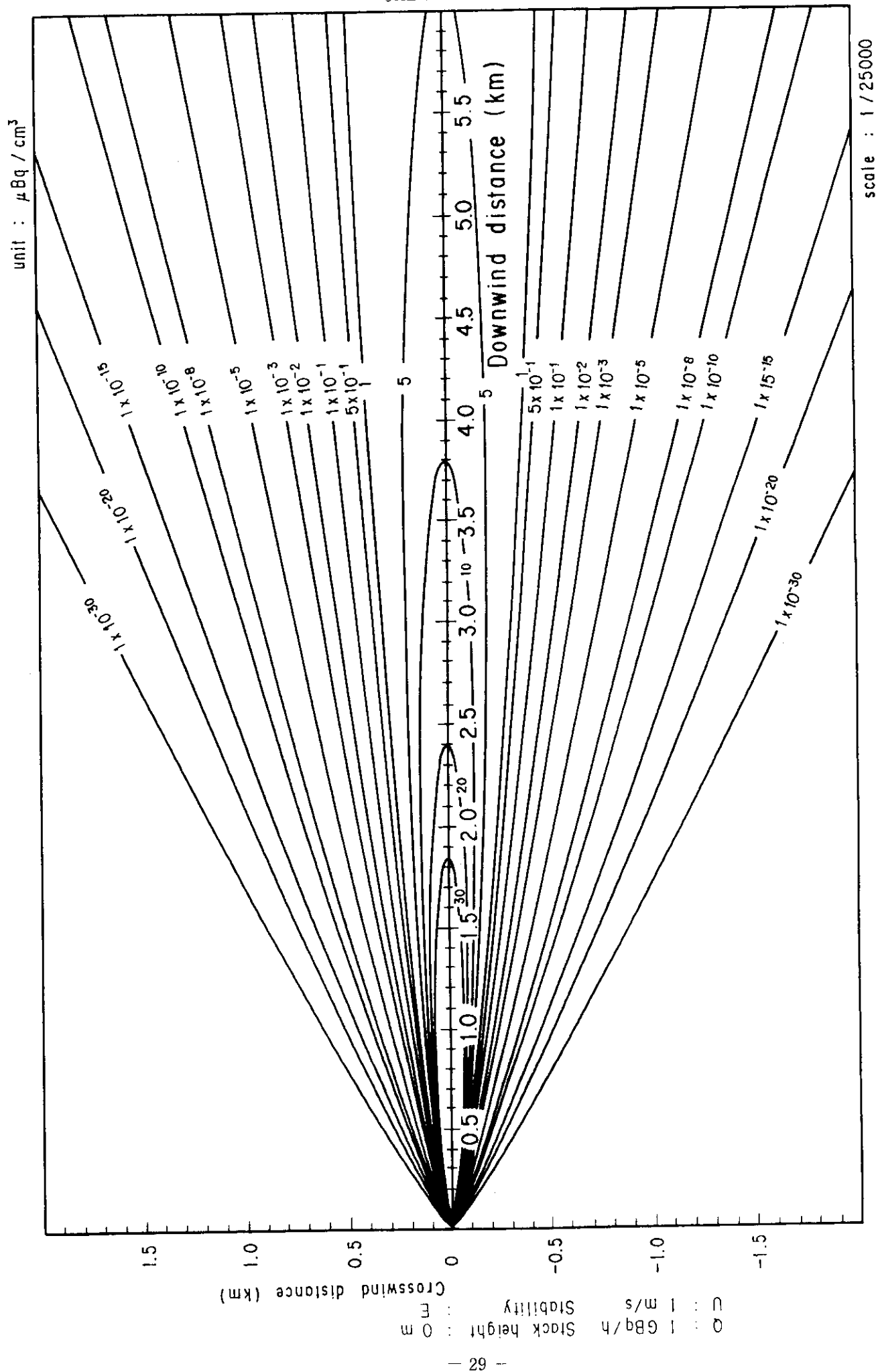


Fig. 2-1-5 (A) Isopleths of surface air concentration

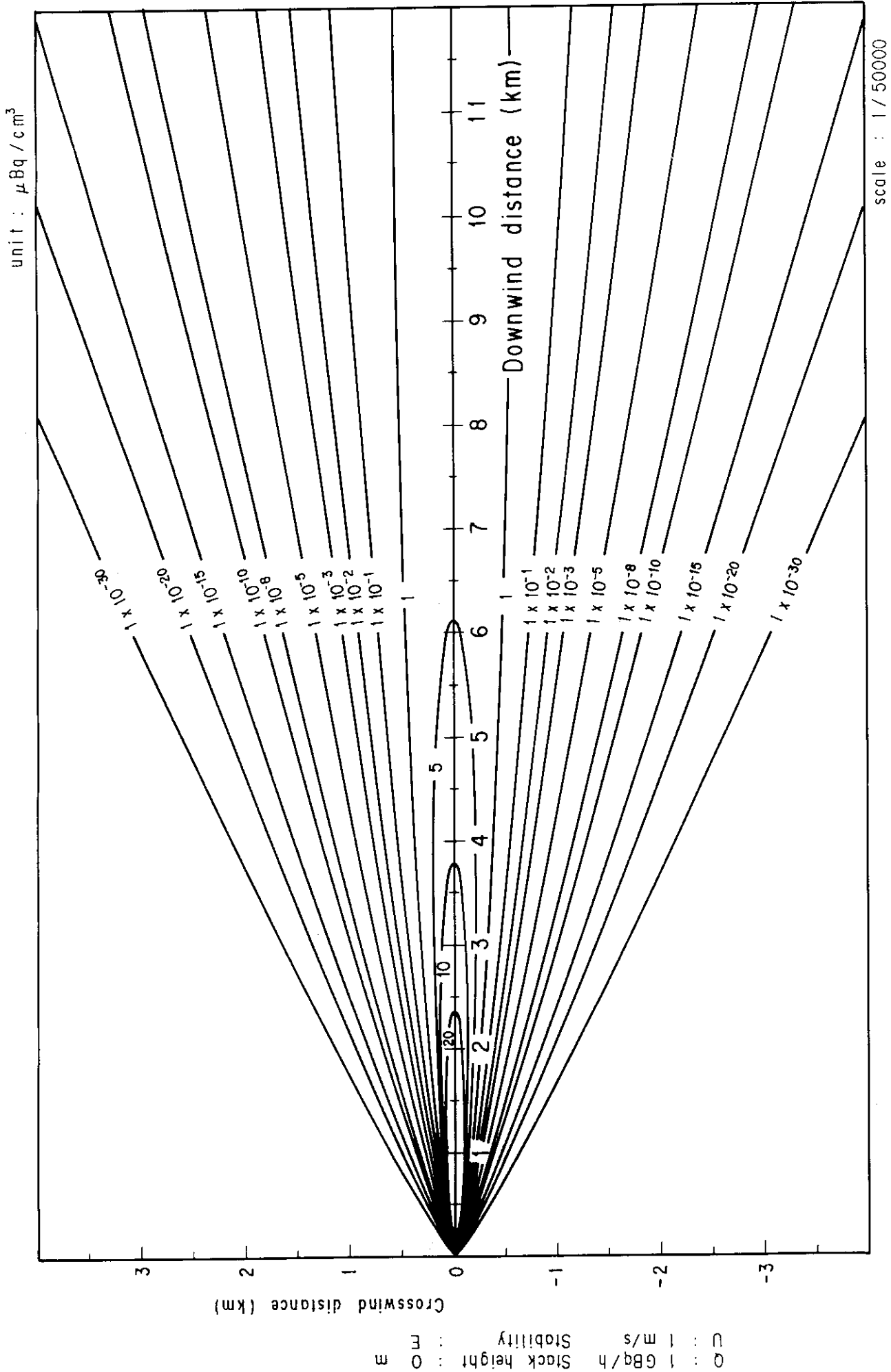


Fig. 2-1-5 (B) Isopleths of surface air concentration

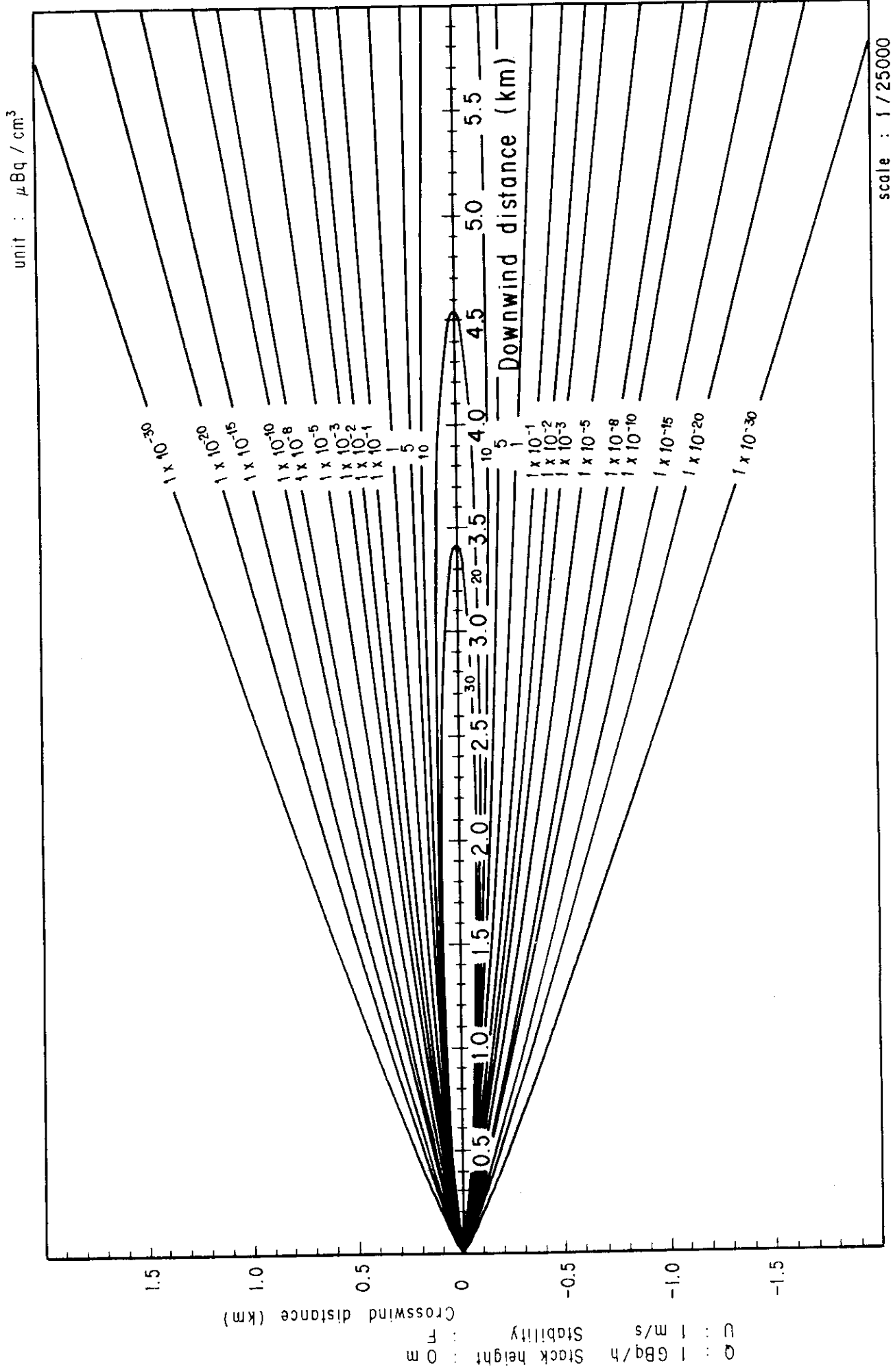


Fig. 2-1-6 (A) Isoleths of surface air concentration

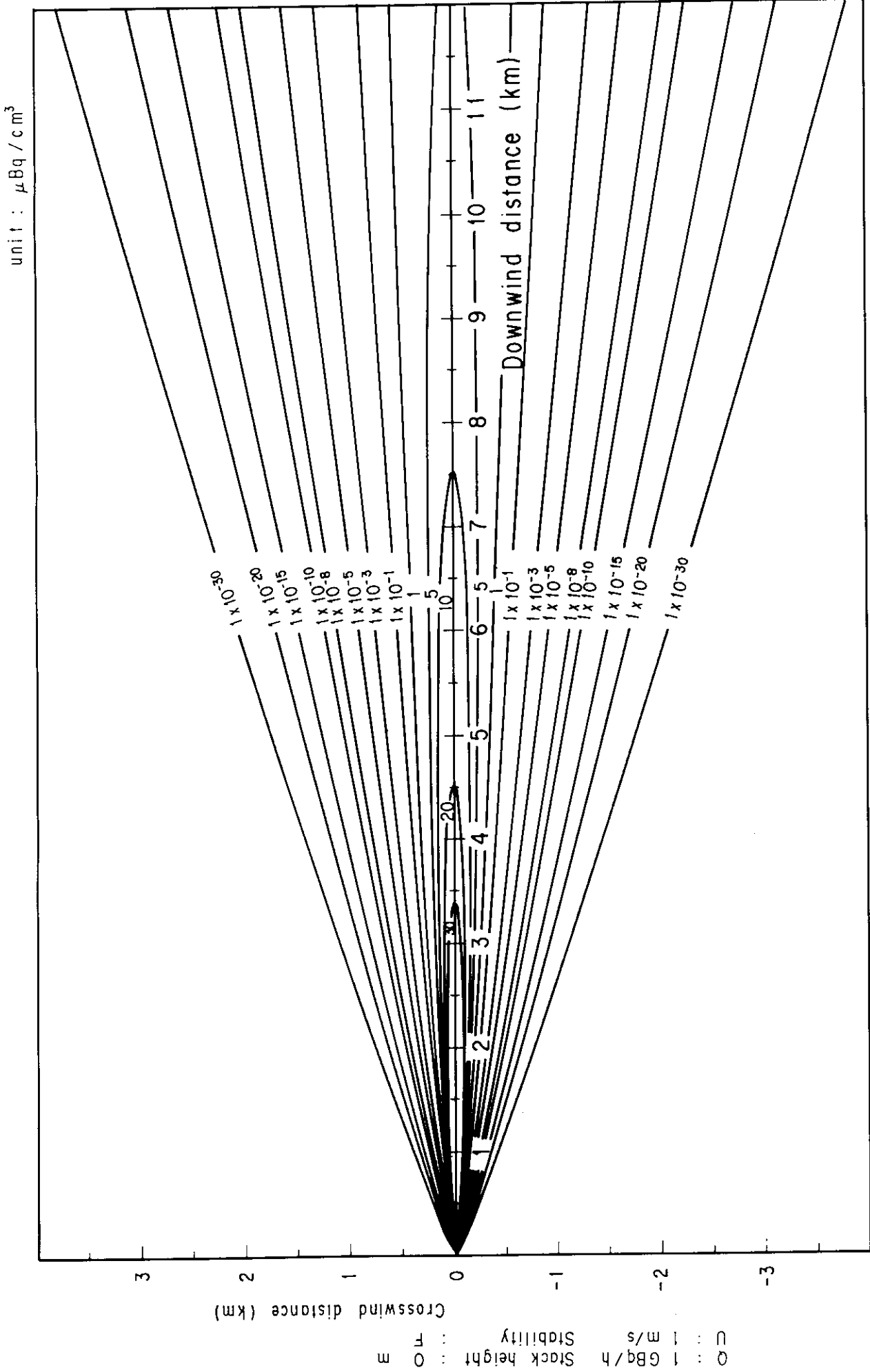


Fig. 2-1-6 (B) Isopleths of surface air concentration

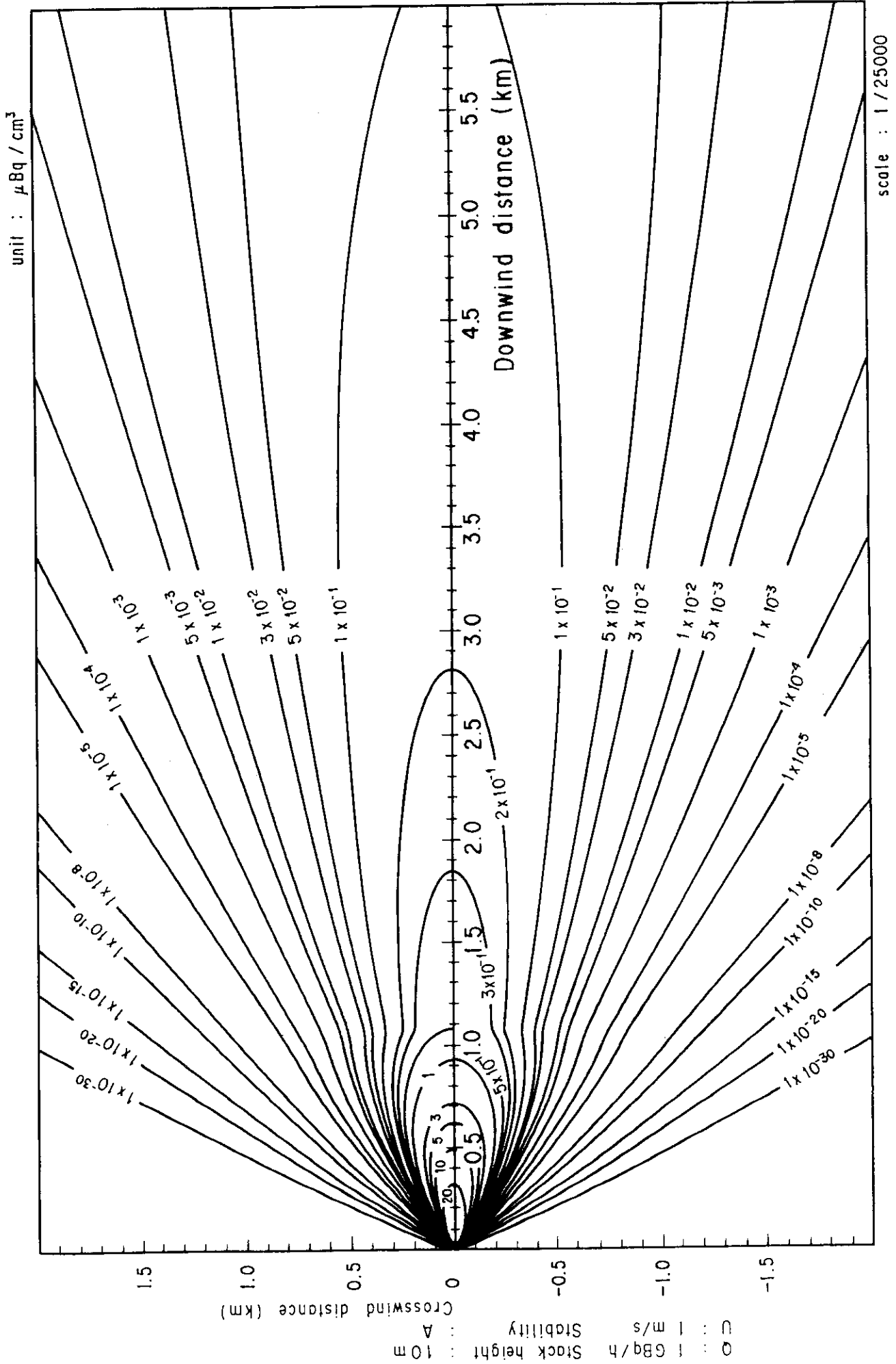


Fig. 2-2-1 (A) Isopleths of surface air concentration

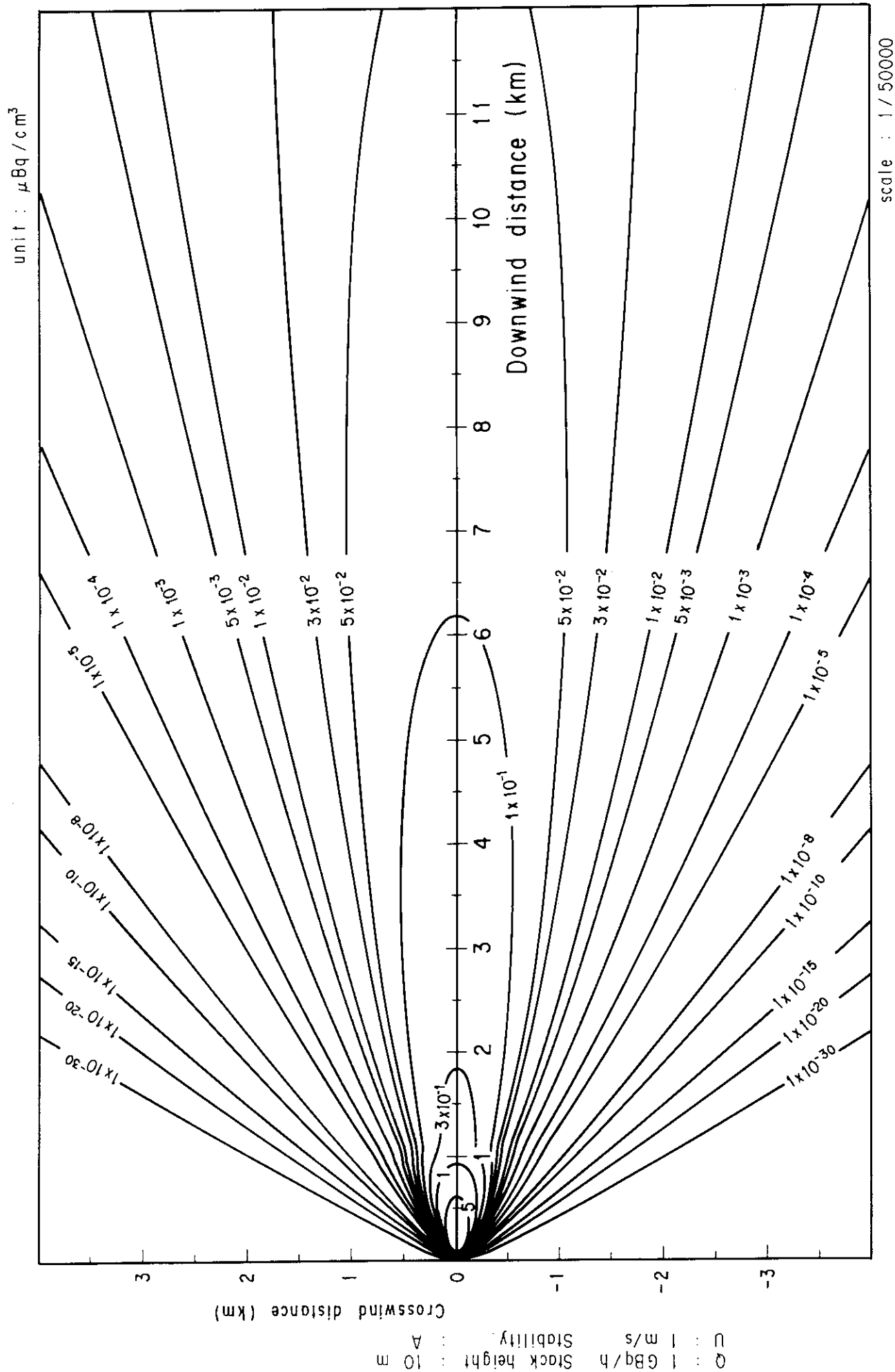


Fig. 2-2-1 (B) Isopleths of surface air concentration

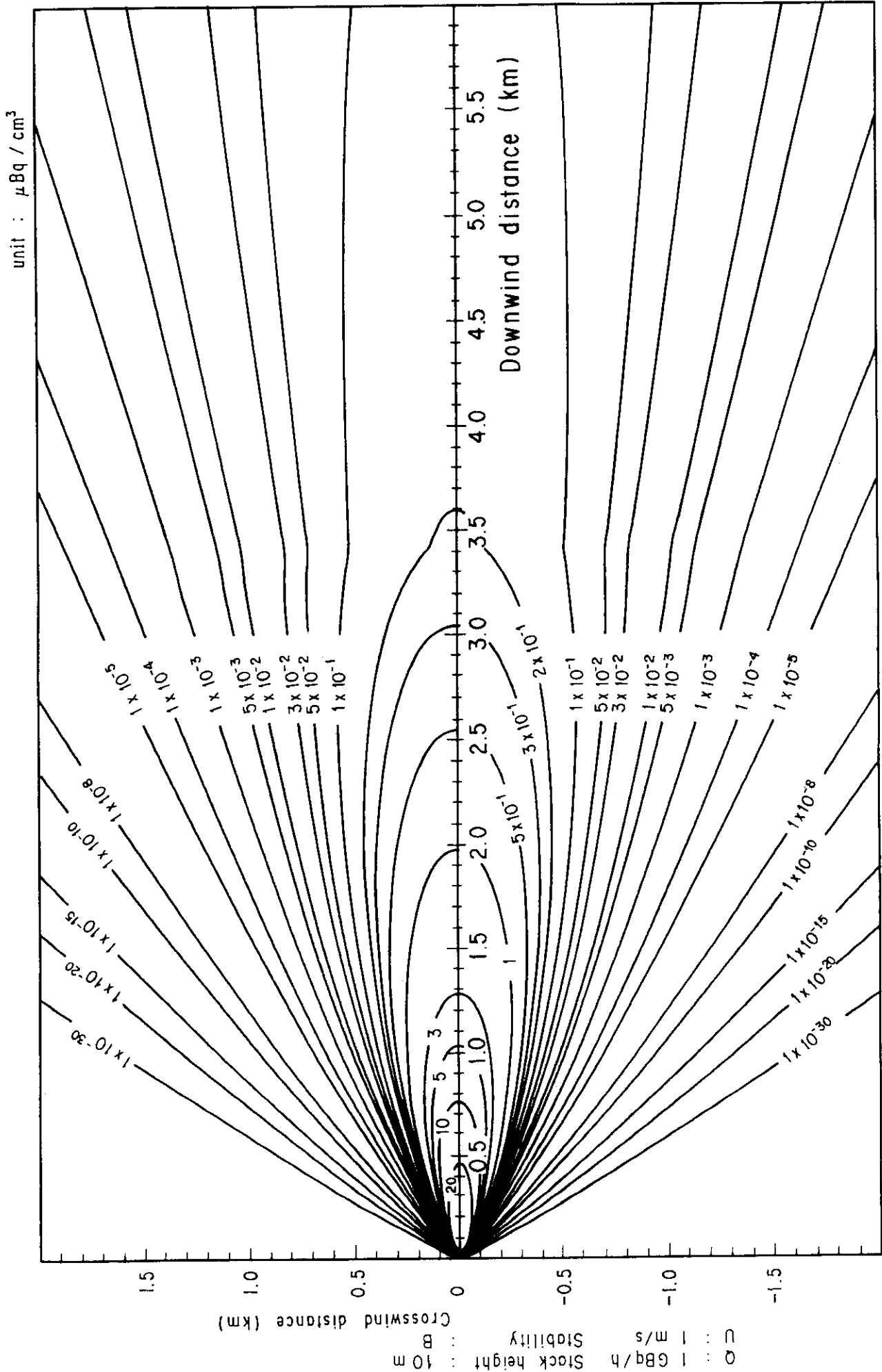


Fig. 2-2-2 (A) Isopleths of surface air concentration

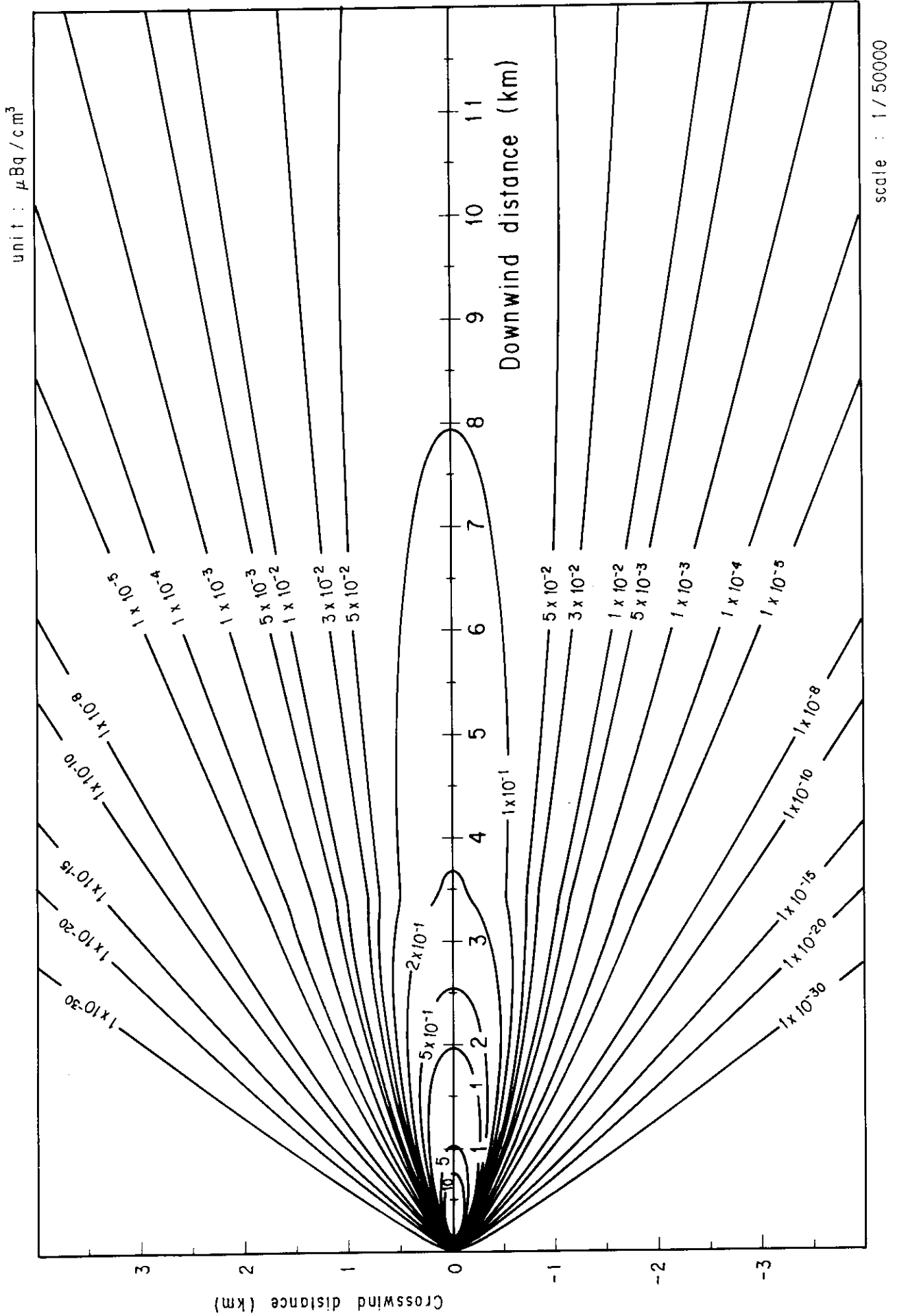


Fig. 2-2-2 (B) Isopleths of surface air concentration

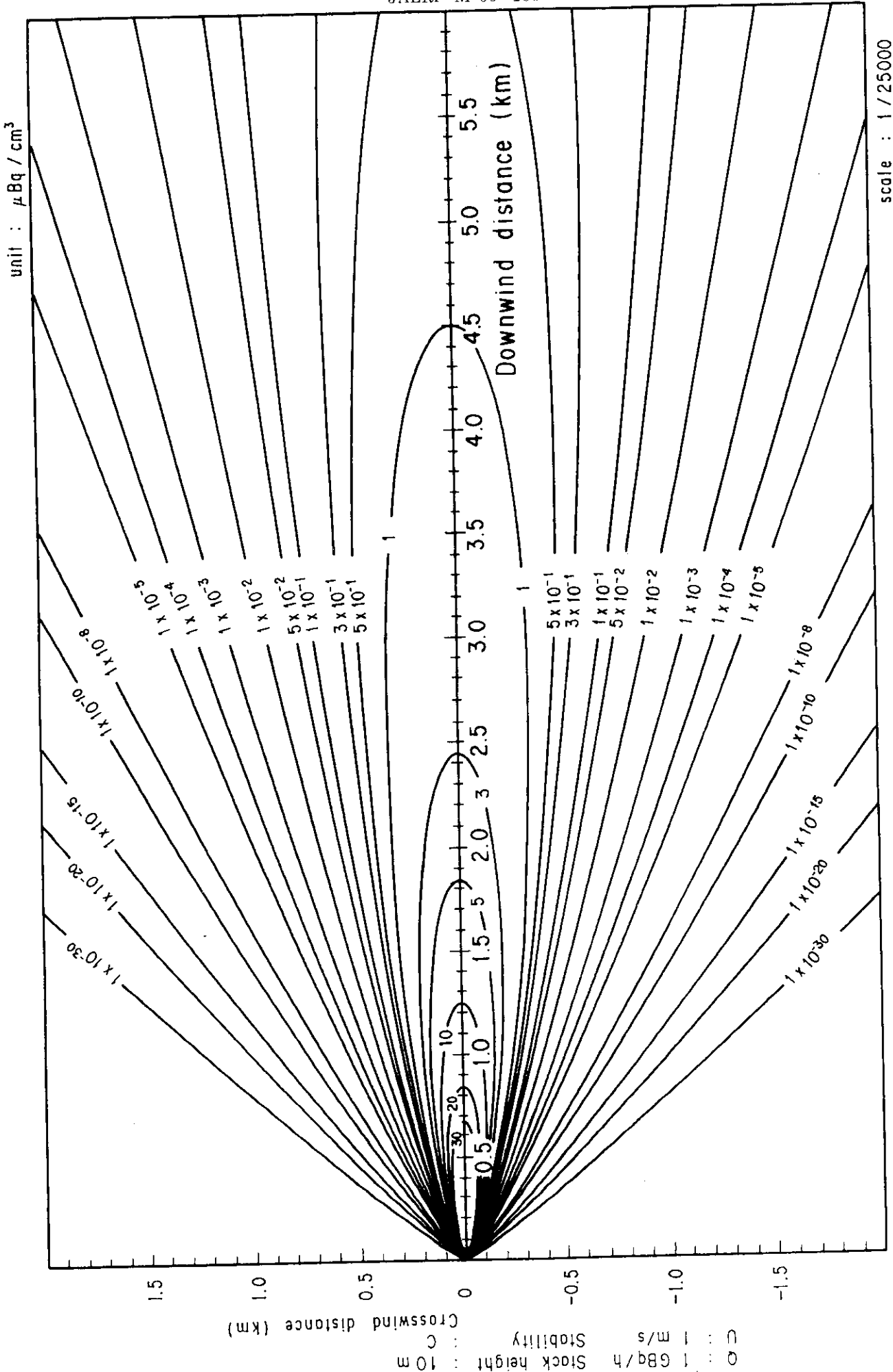


Fig. 2-2-3 (A) Isopleths of surface air concentration

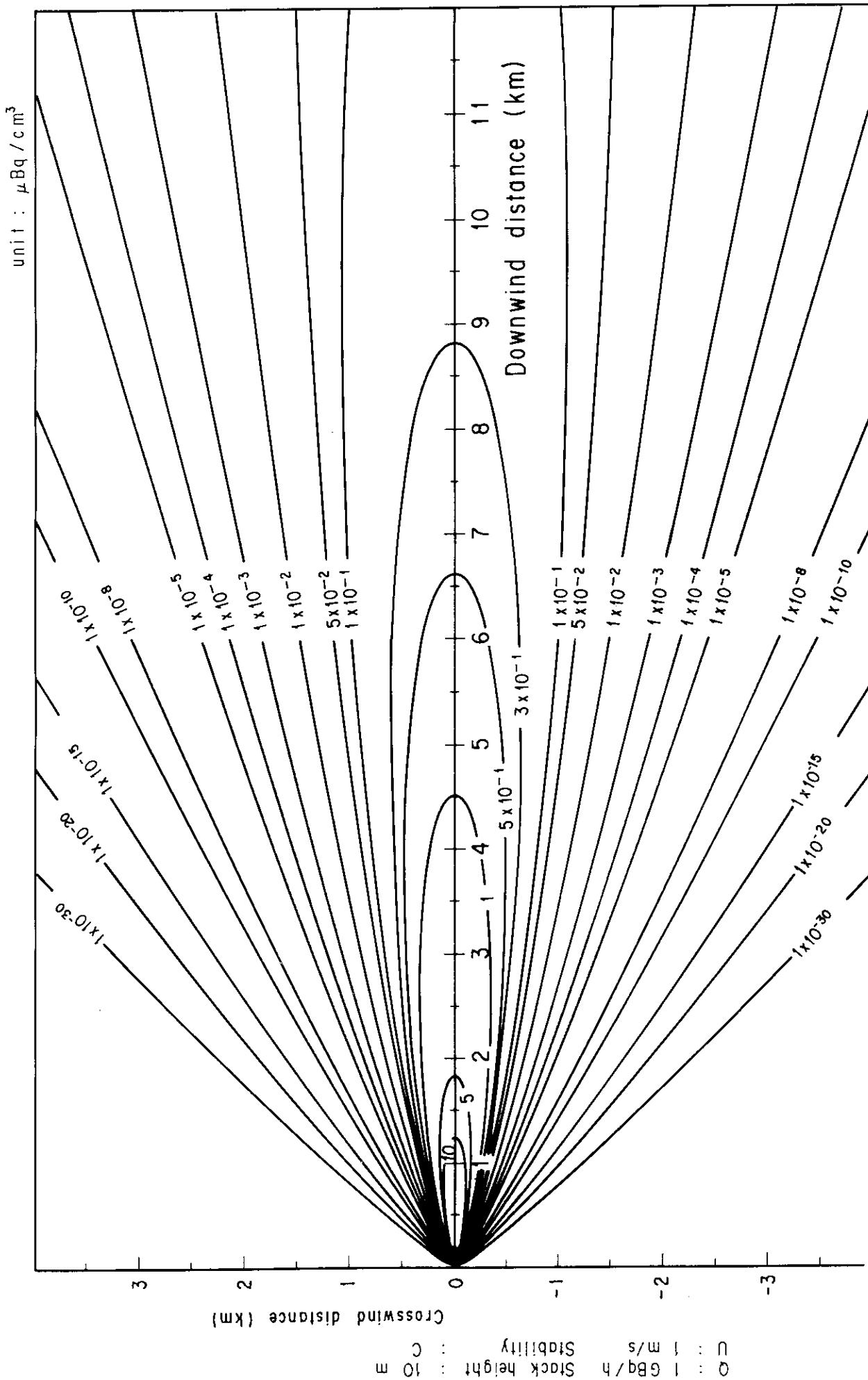


Fig. 2-2-3 (B) Isopleths of surface air concentration

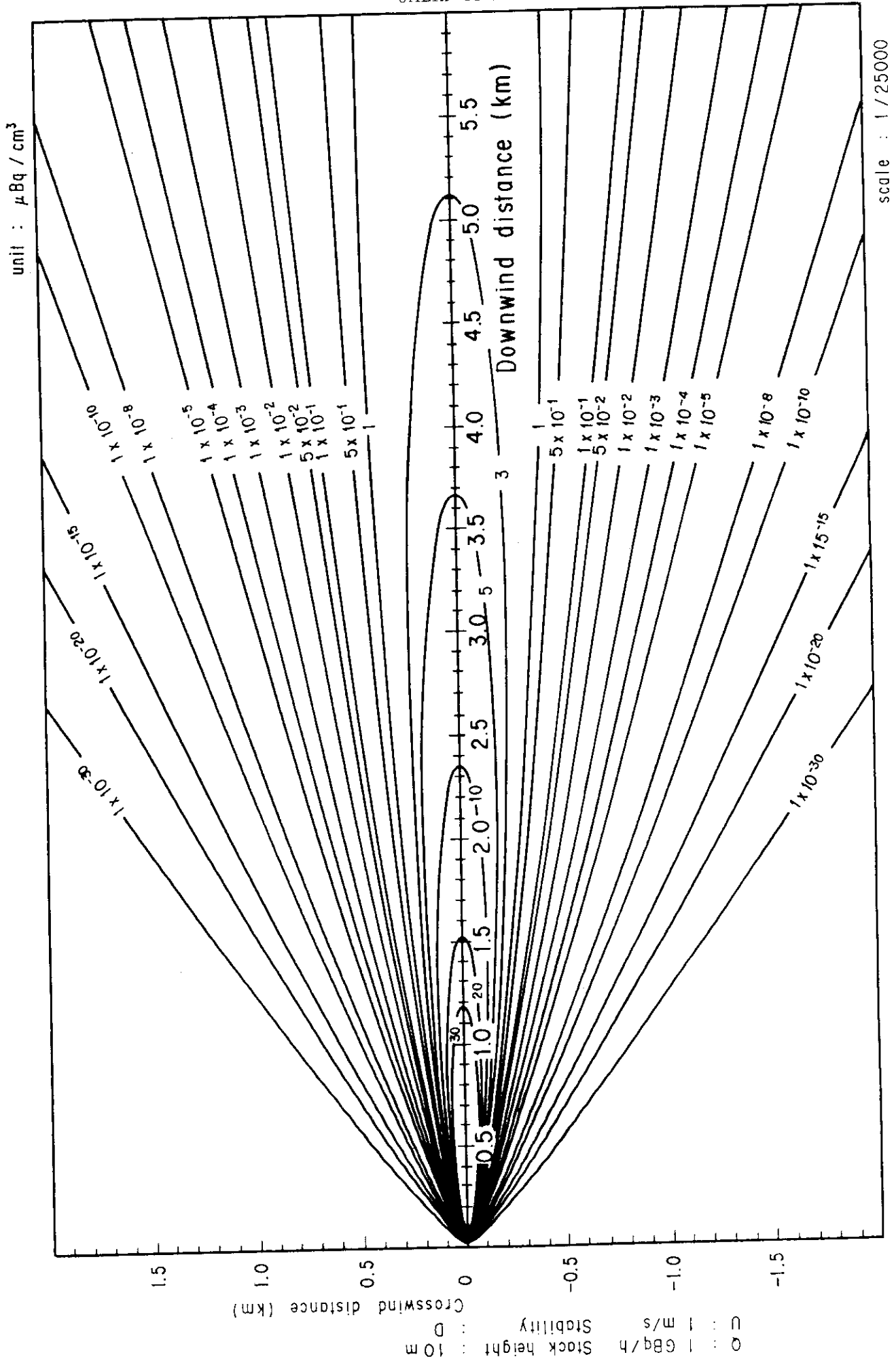


Fig. 2-2-4 (A) Isopleths of surface air concentration

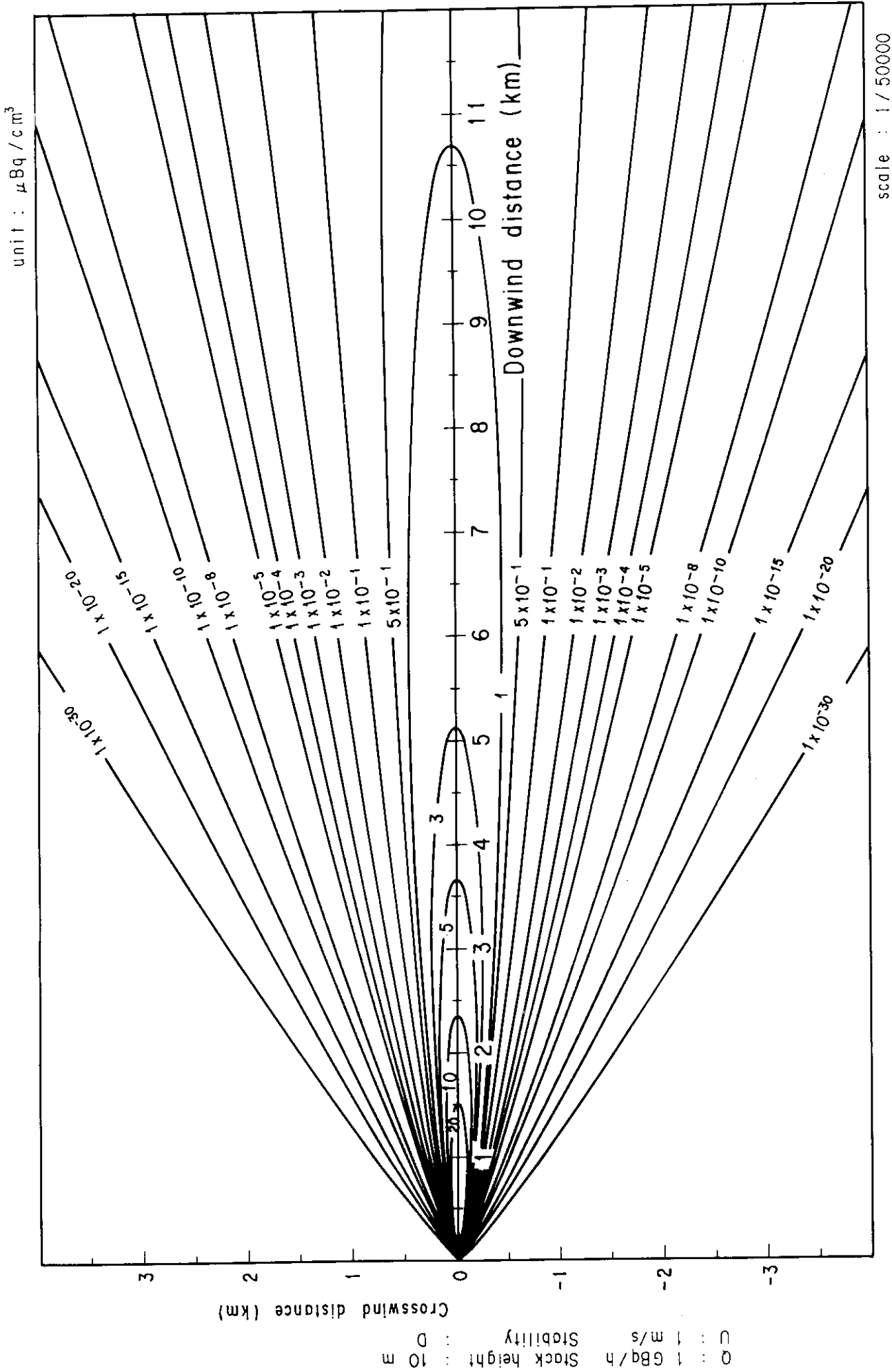


Fig. 2-2-4 (B) Isopleths of surface air concentration

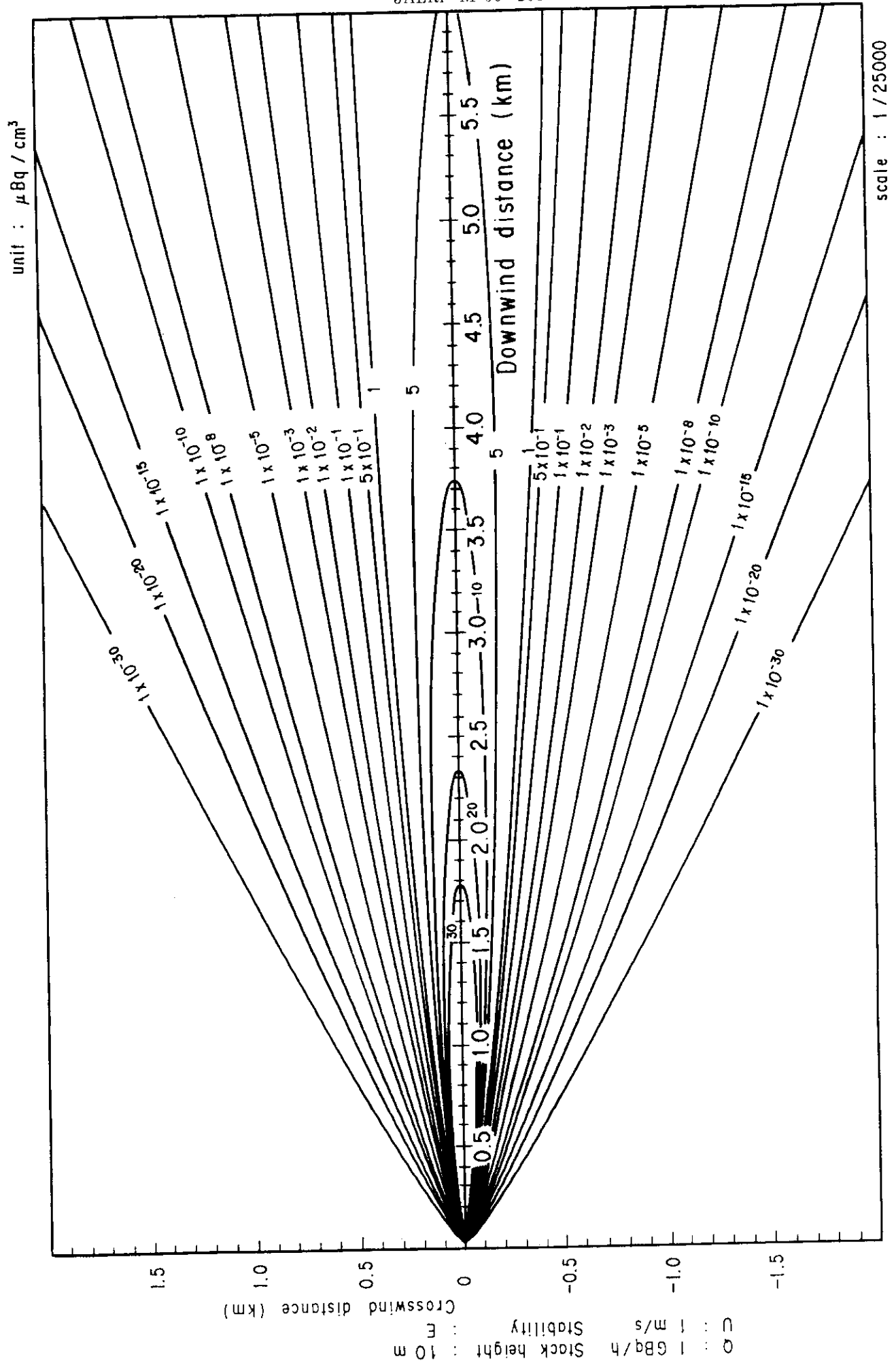


Fig. 2-2-5 (A) Isopleths of surface air concentration

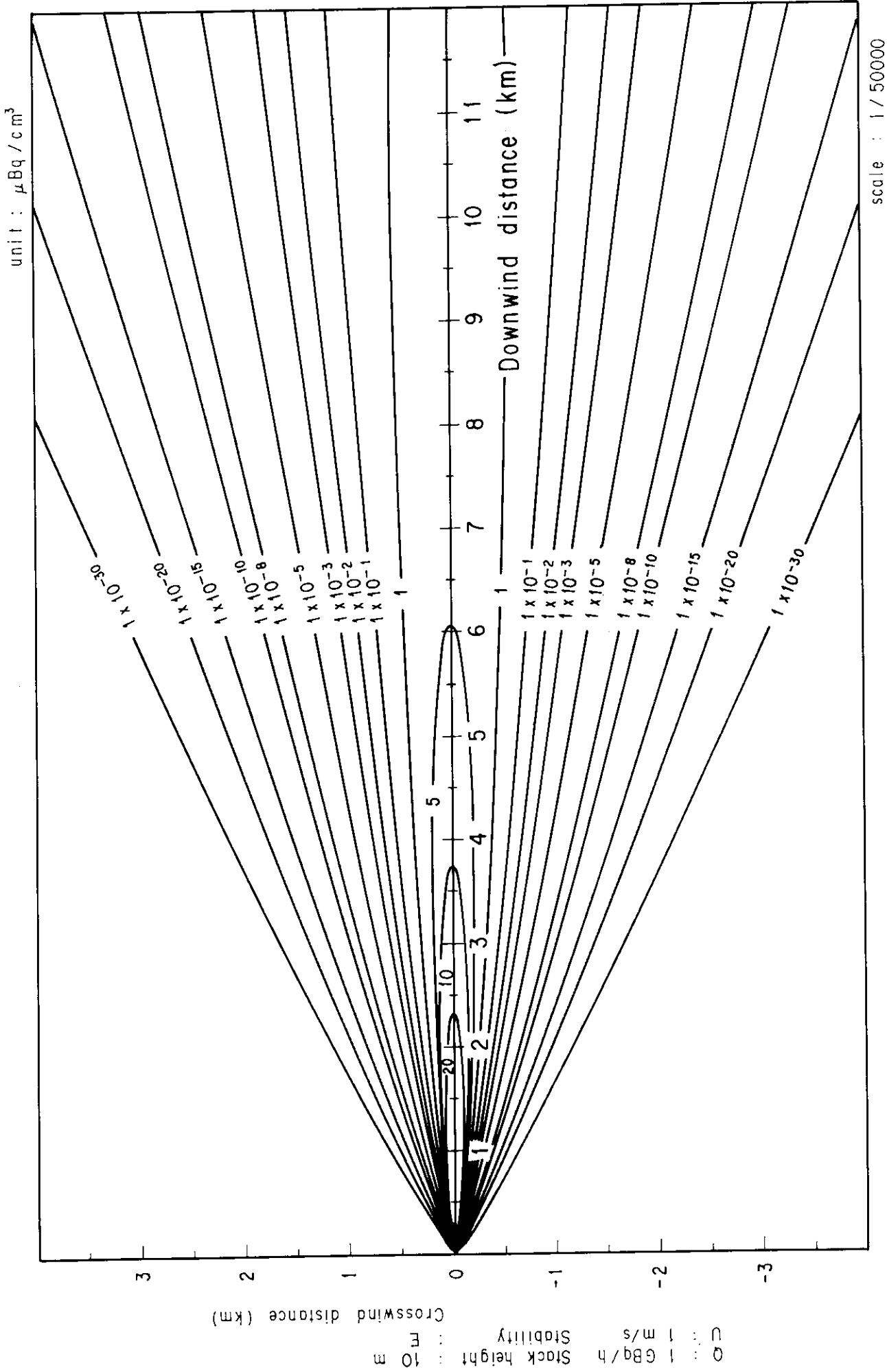


Fig. 2-2-5 (B) Isopleths of surface air concentration

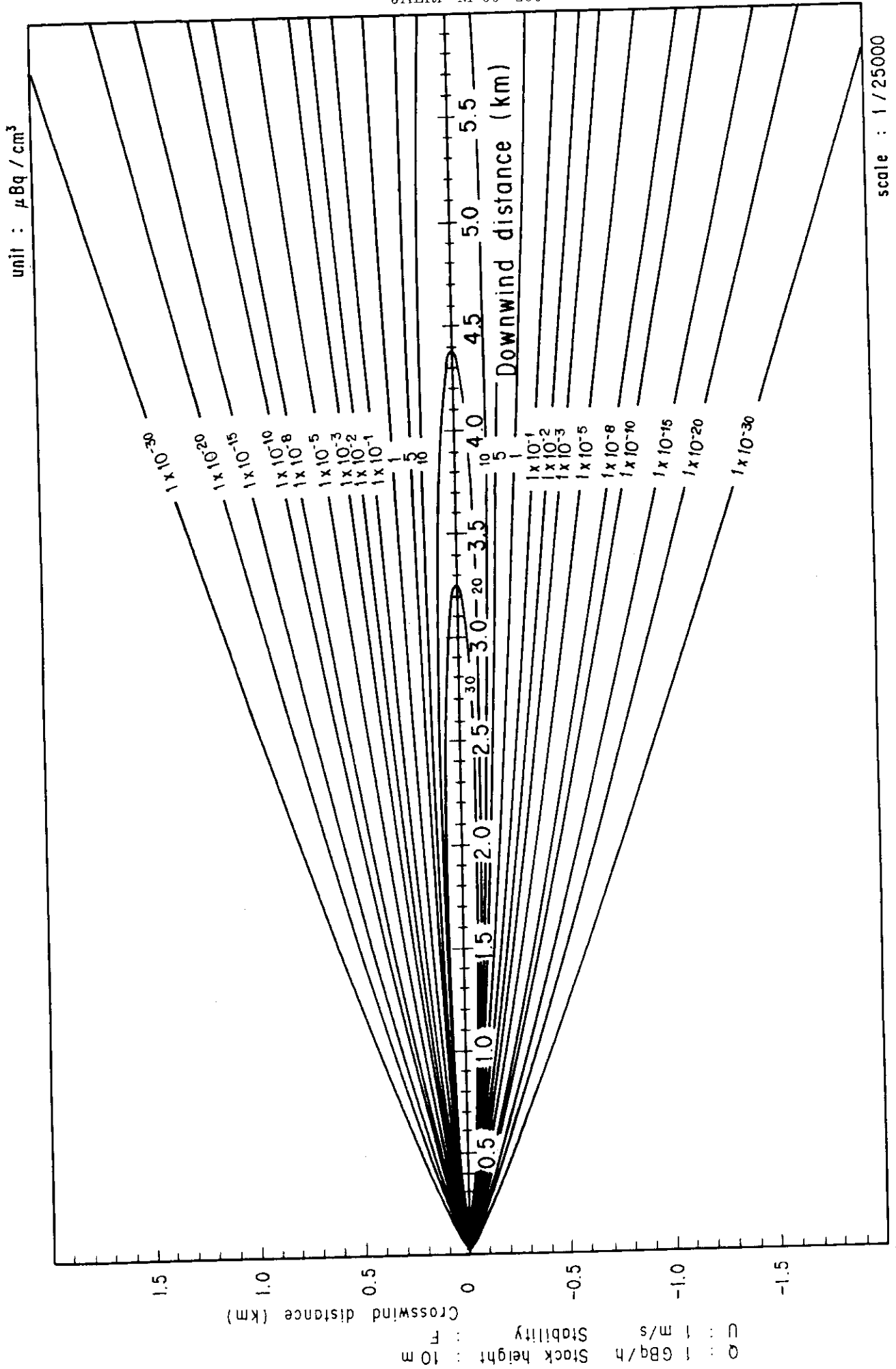


Fig. 2-2-6 (A) Isopleths of surface air concentration

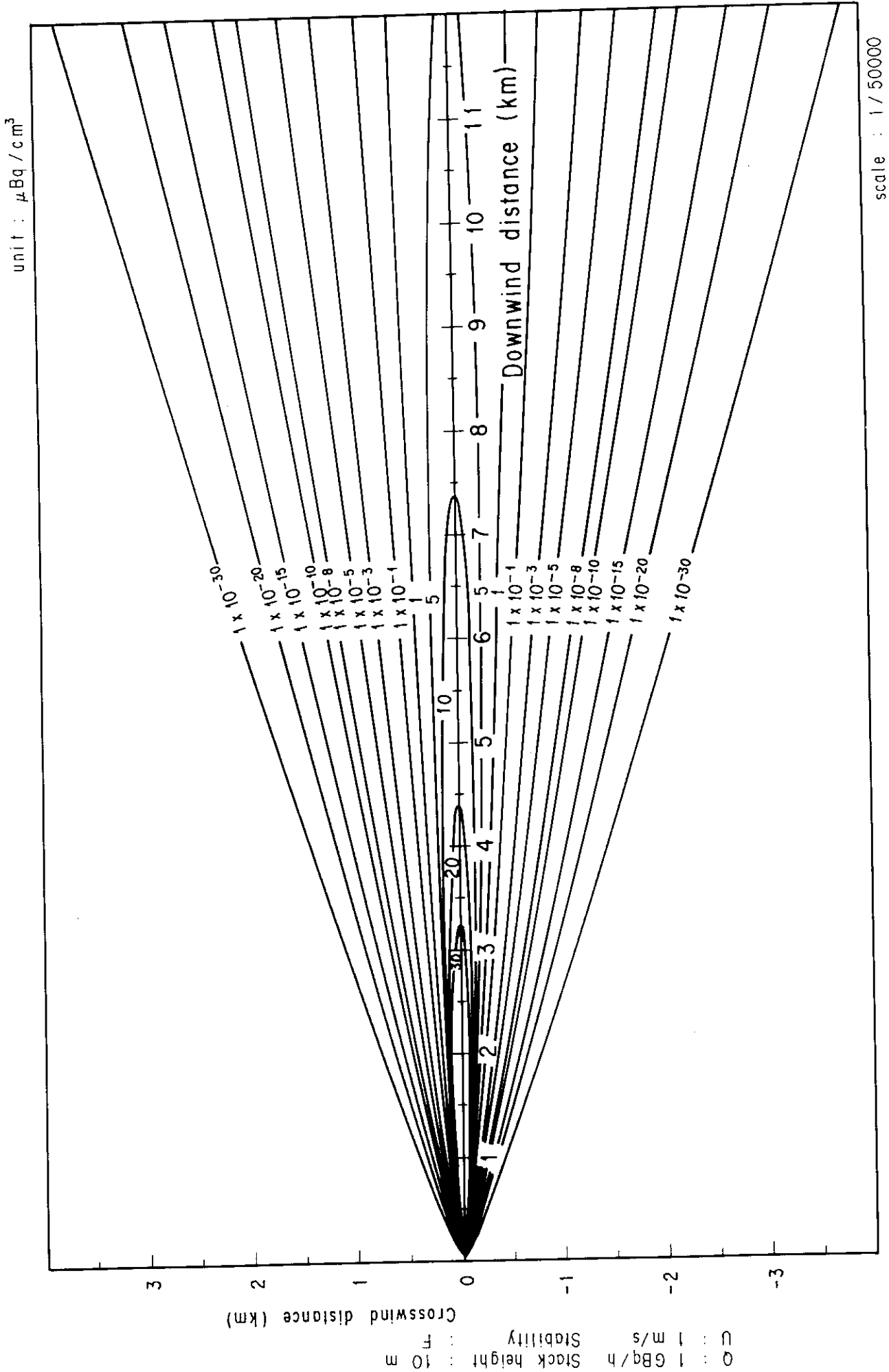


Fig. 2-2-6 (B) Isopleths of surface air concentration

Q : 1 GBq/h
 Stack height : 10 m
 Stability : F
 U : 1 m/s

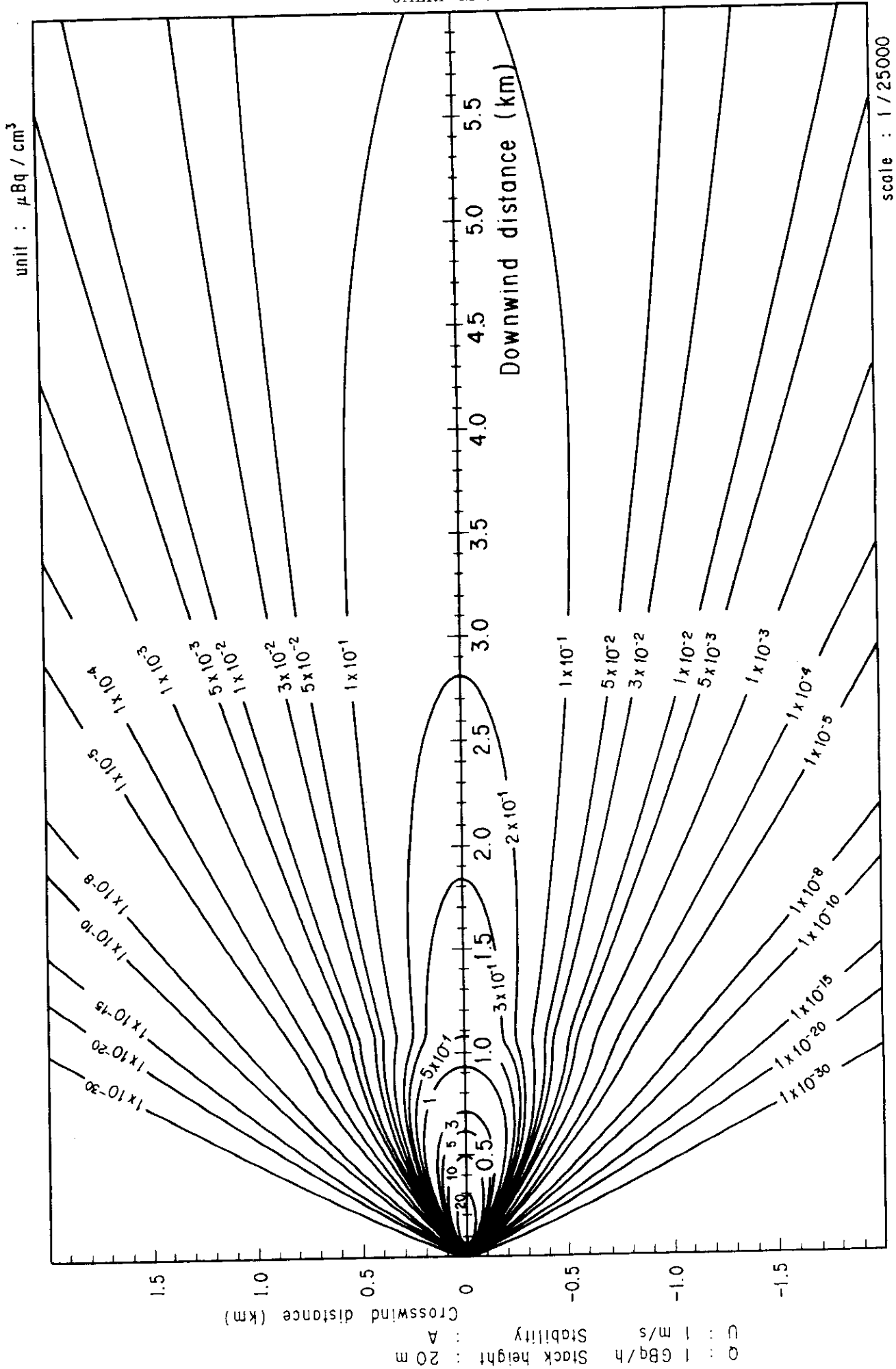


Fig. 2-3-1 (A) Isopleths of surface air concentration

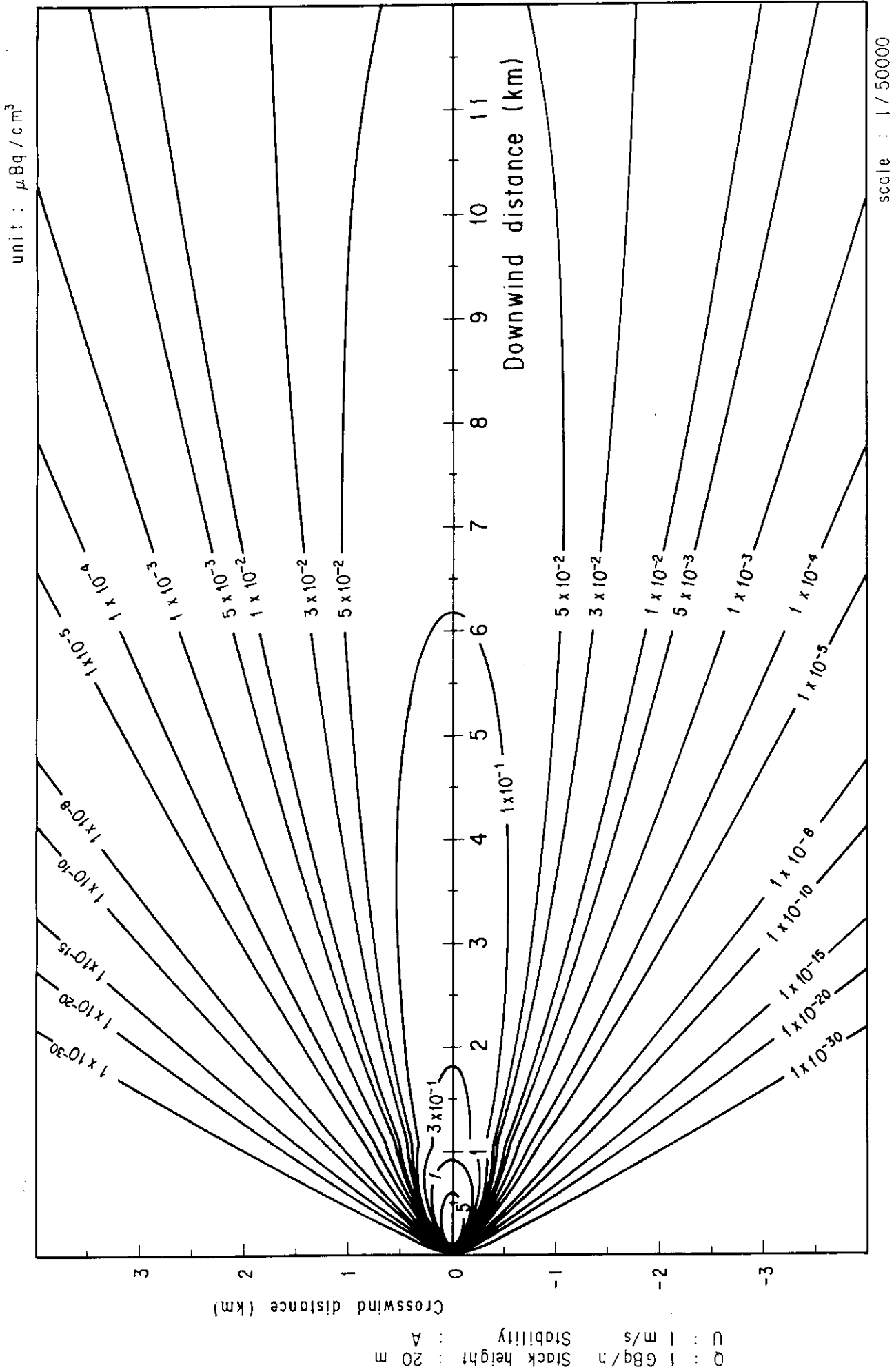


Fig. 2-3-1 (B) Isopleths of surface air concentration

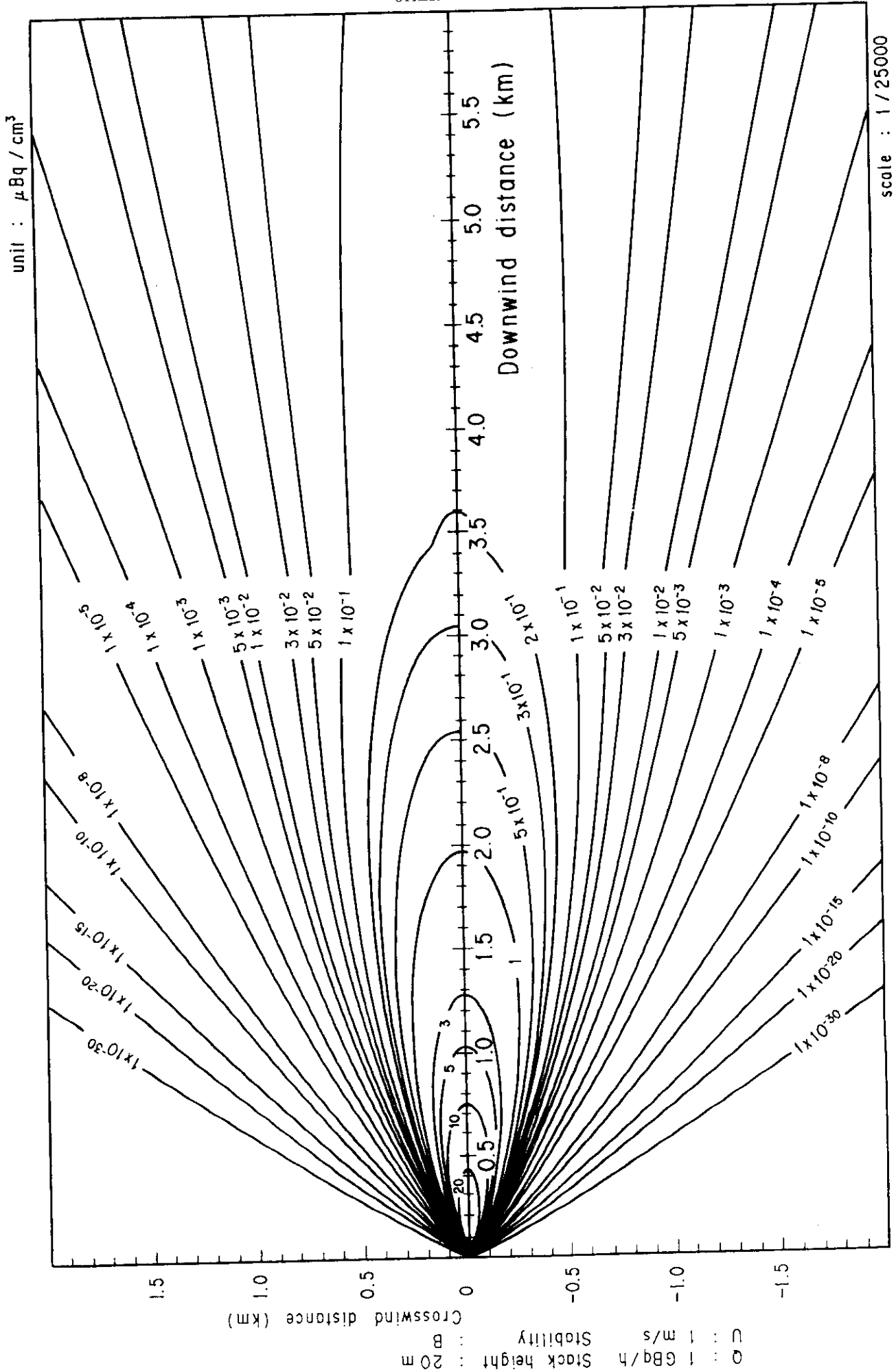


Fig. 2-3-2 (A) Isopleths of surface air concentration

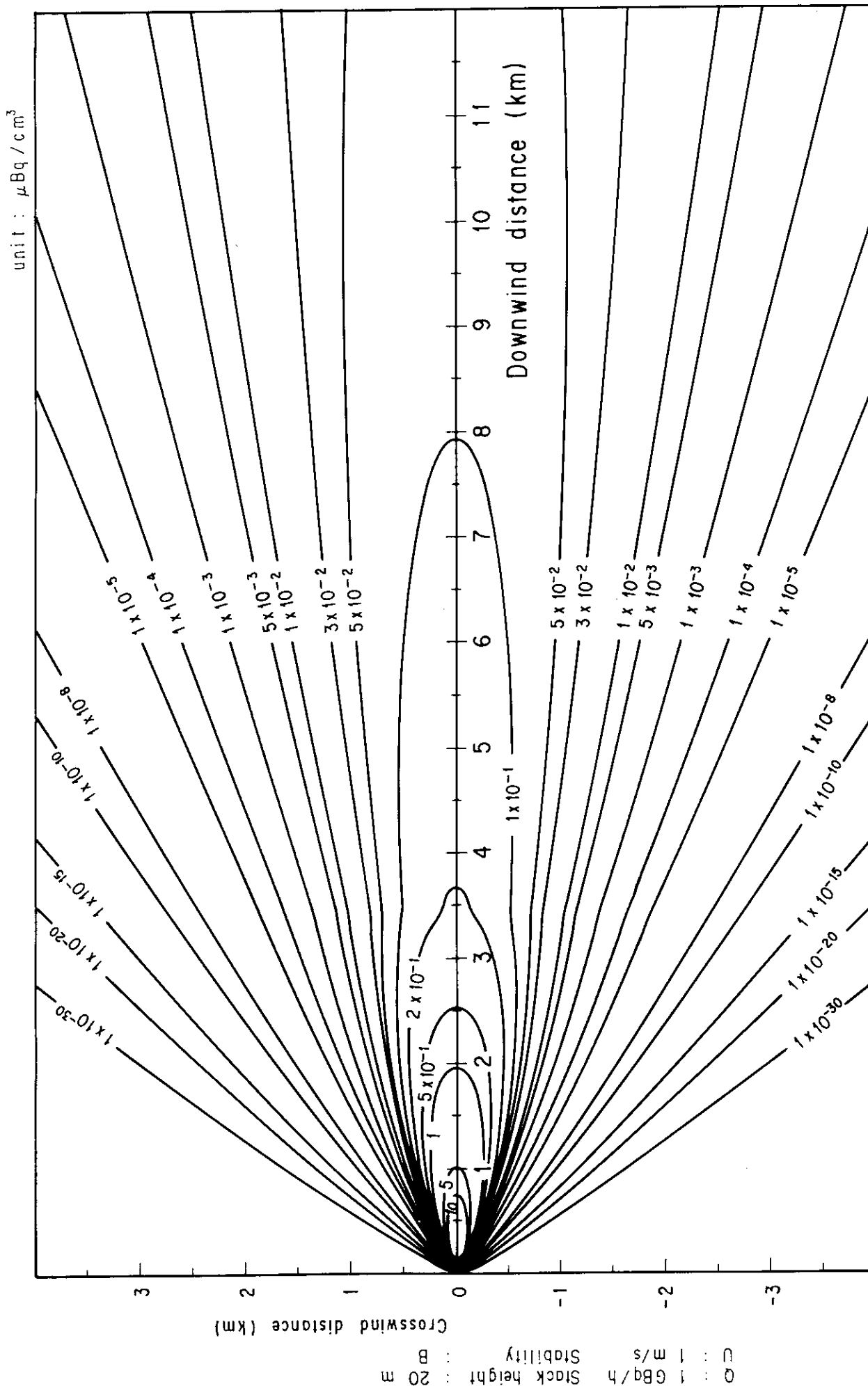


Fig. 2-3-2 (B) Isopleths of surface air concentration

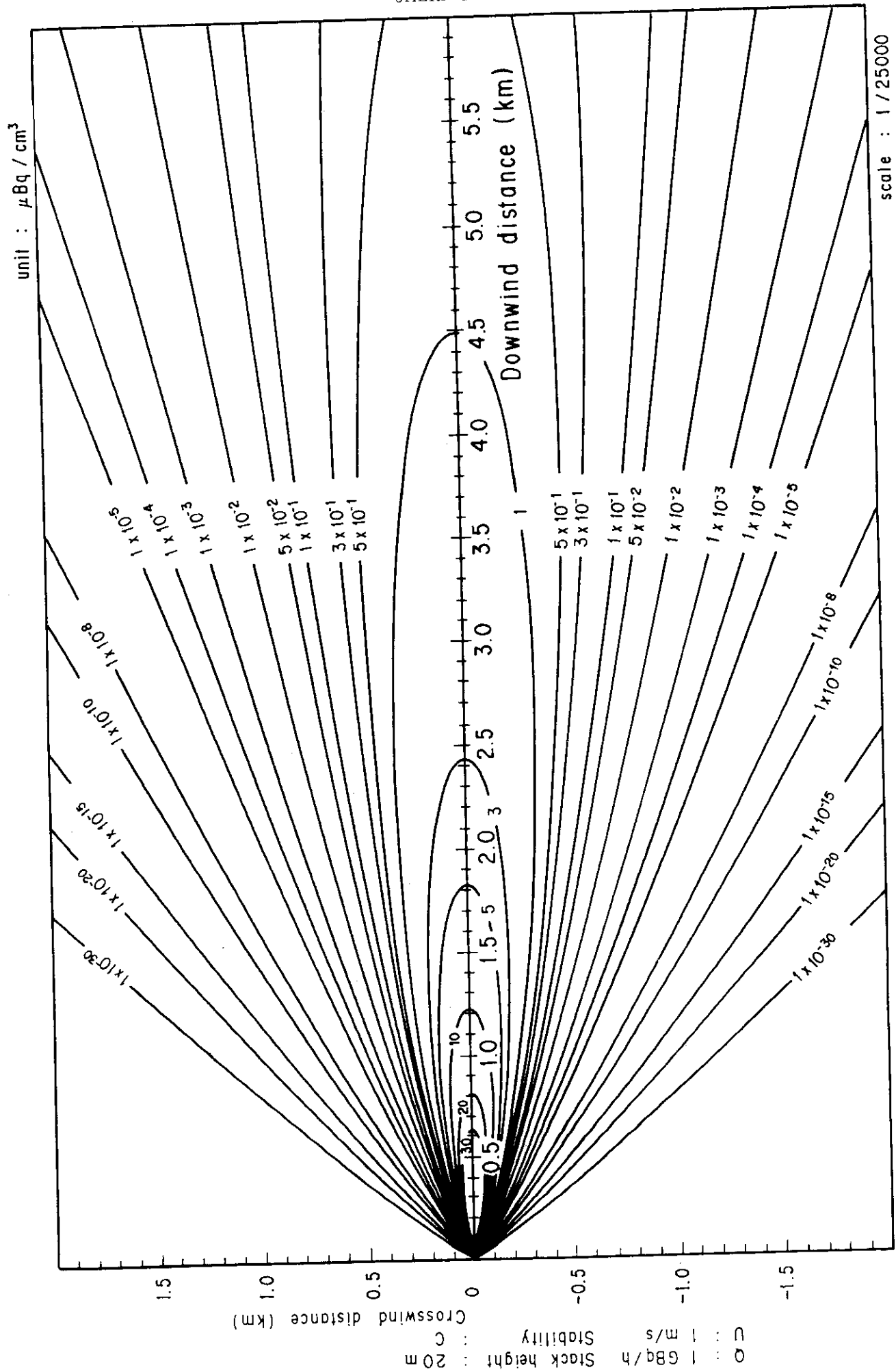


Fig. 2-3-3 (A) Isopleths of surface air concentration

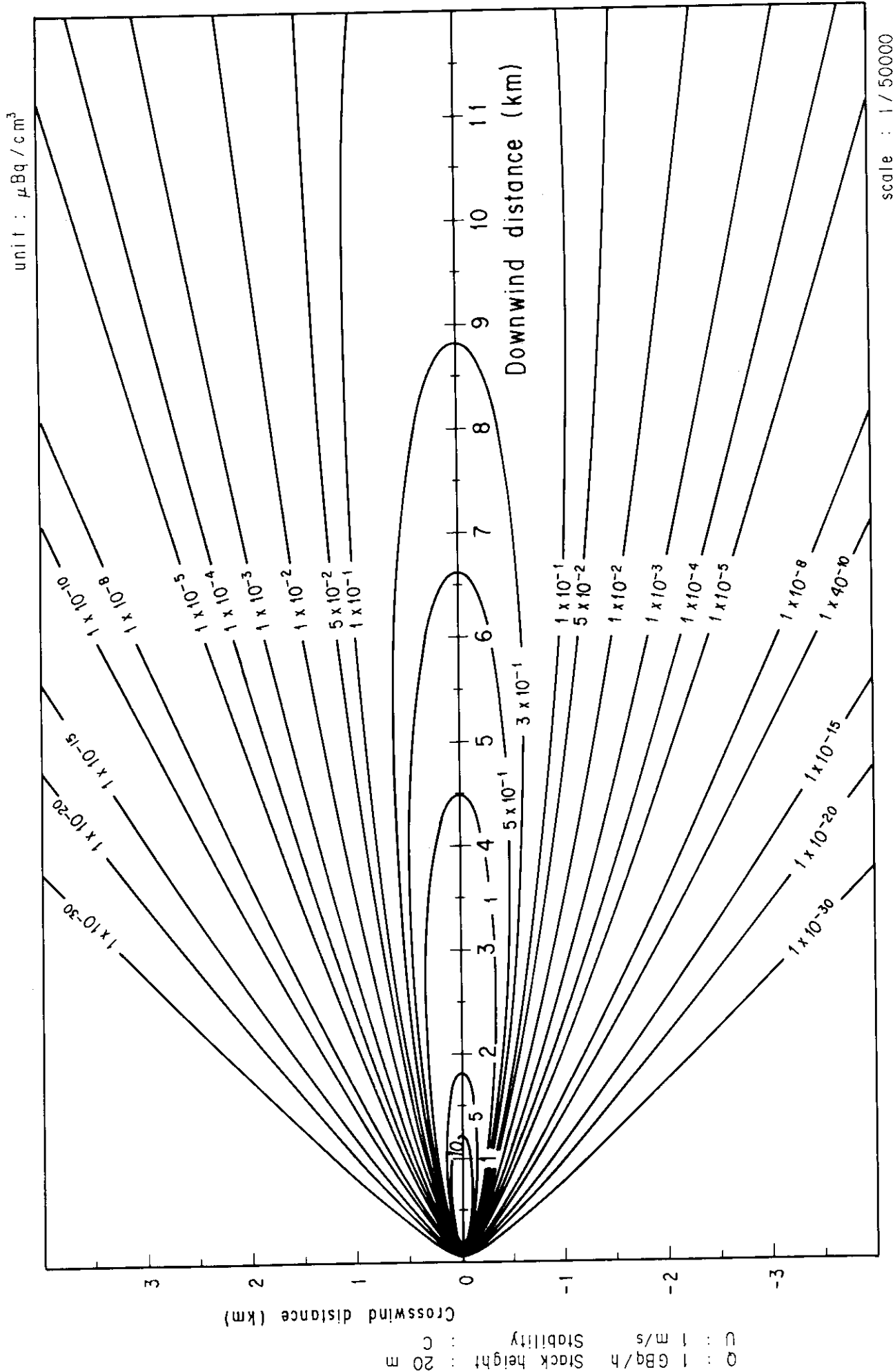


Fig. 2-3-3 (B) Isopleths of surface air concentration

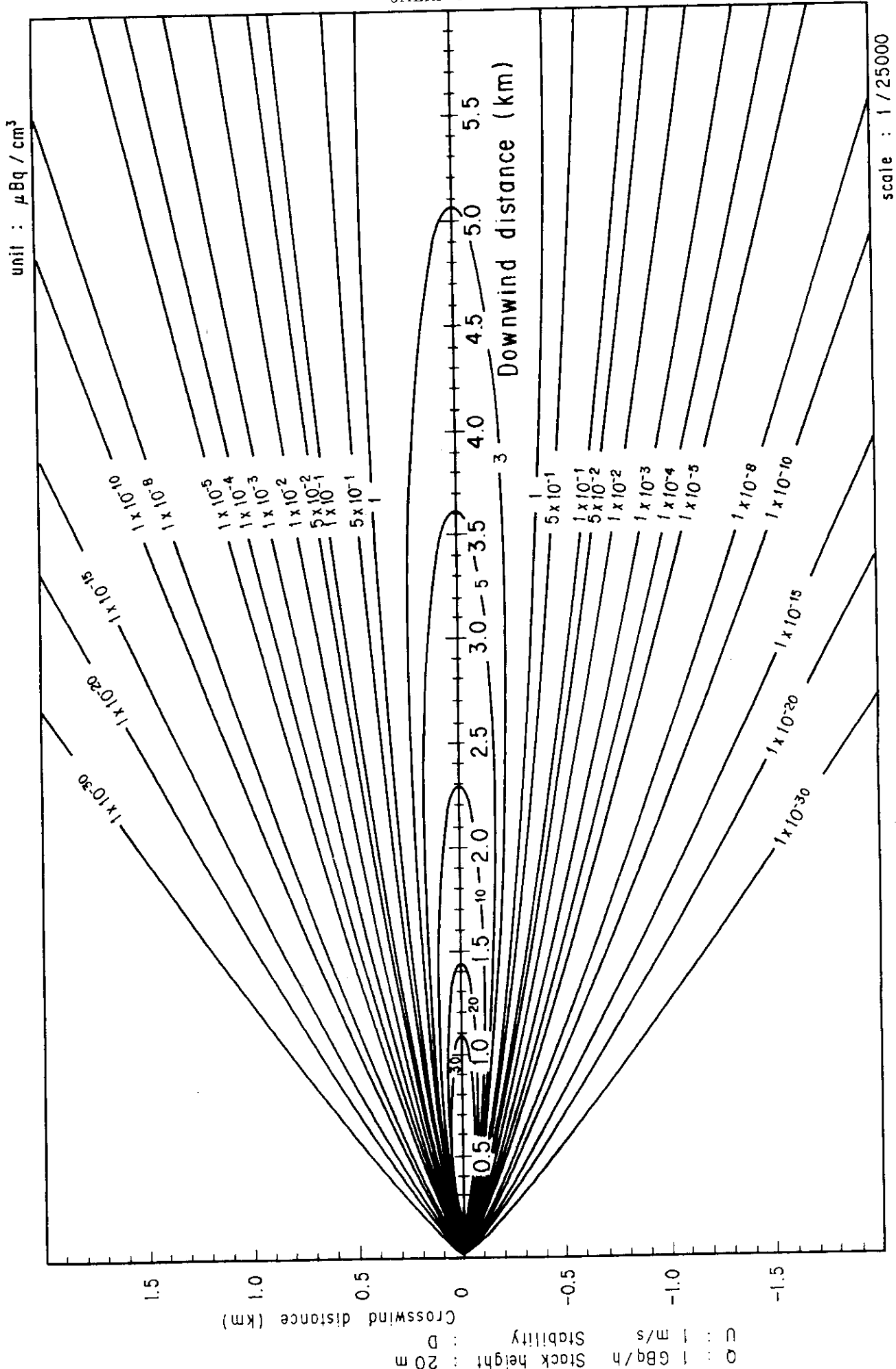


Fig. 2-3-4 (A) Isopleths of surface air concentration

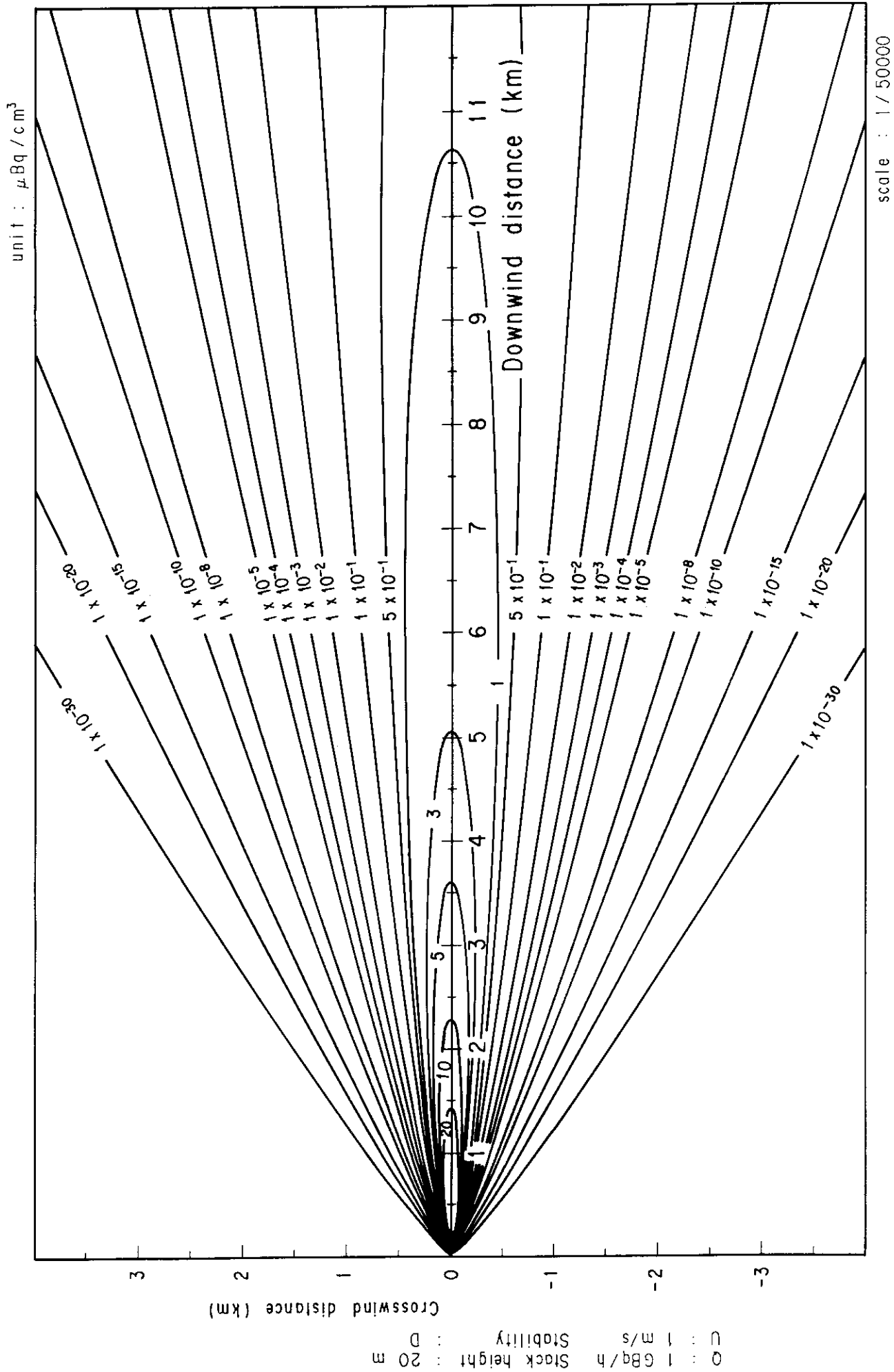


Fig. 2-3-4 (B) Isopleths of surface air concentration

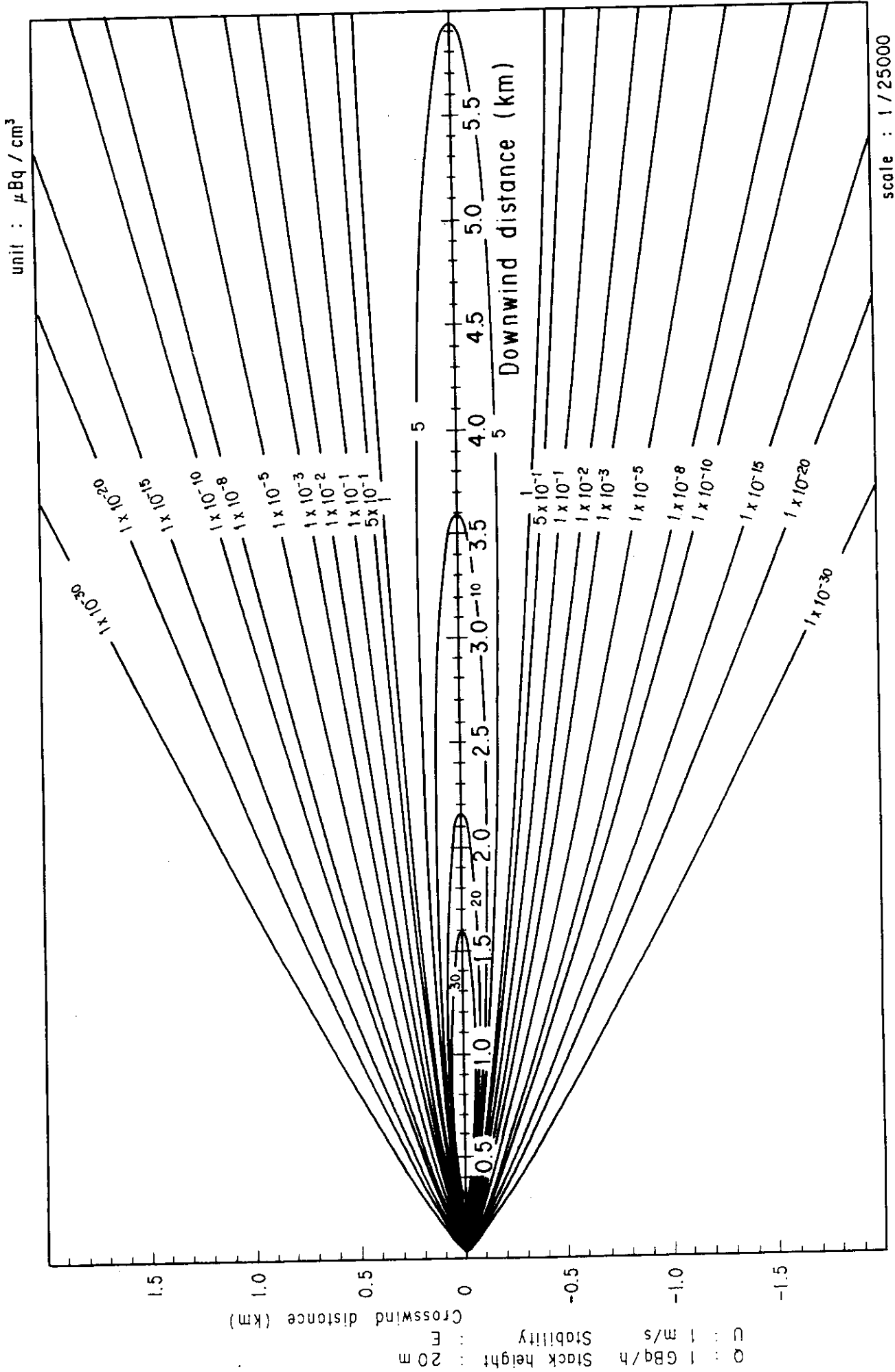


Fig. 2-3-5 (A) Isopleths of surface air concentration

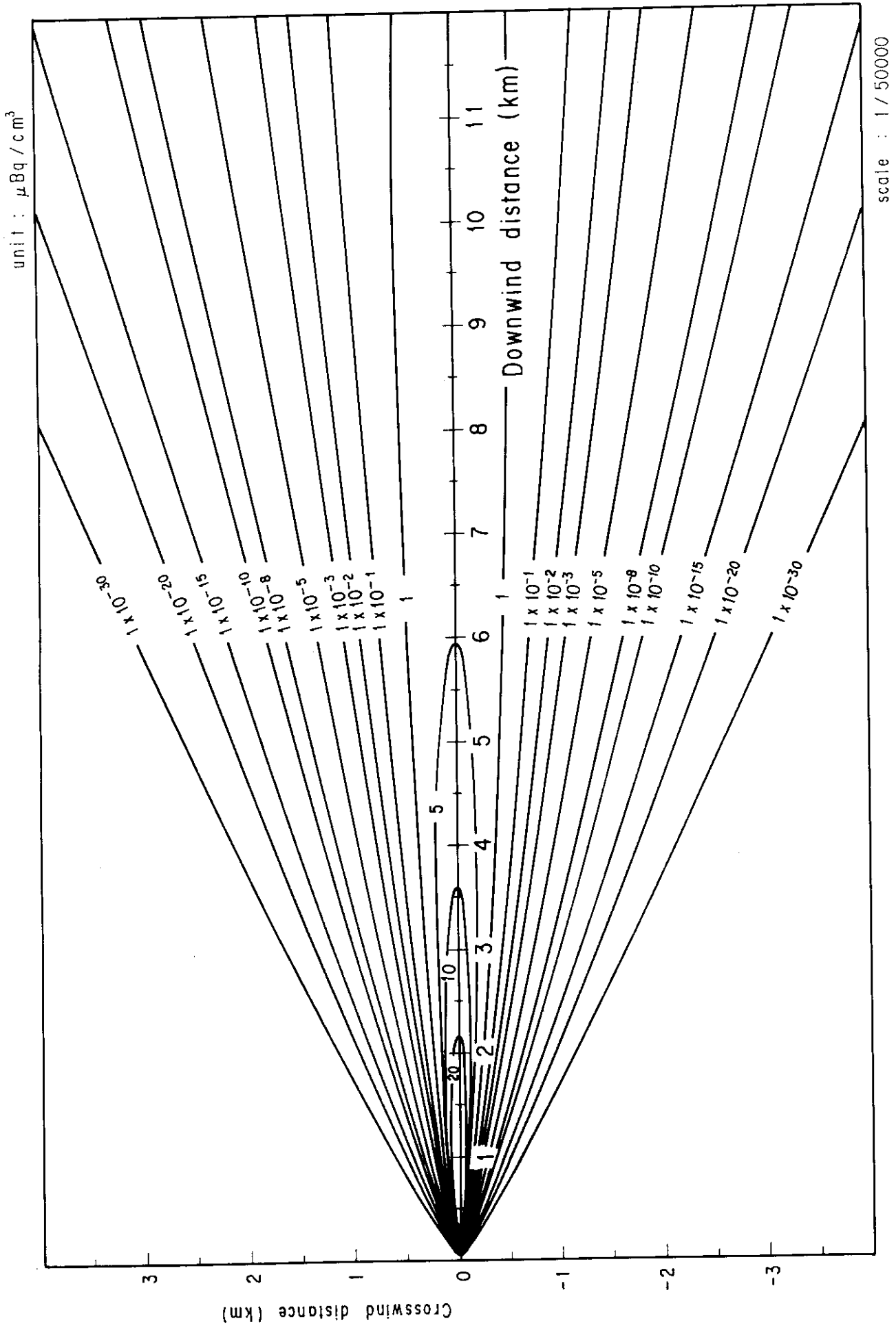


Fig. 2-3-5 (B) Isopleths of surface air concentration

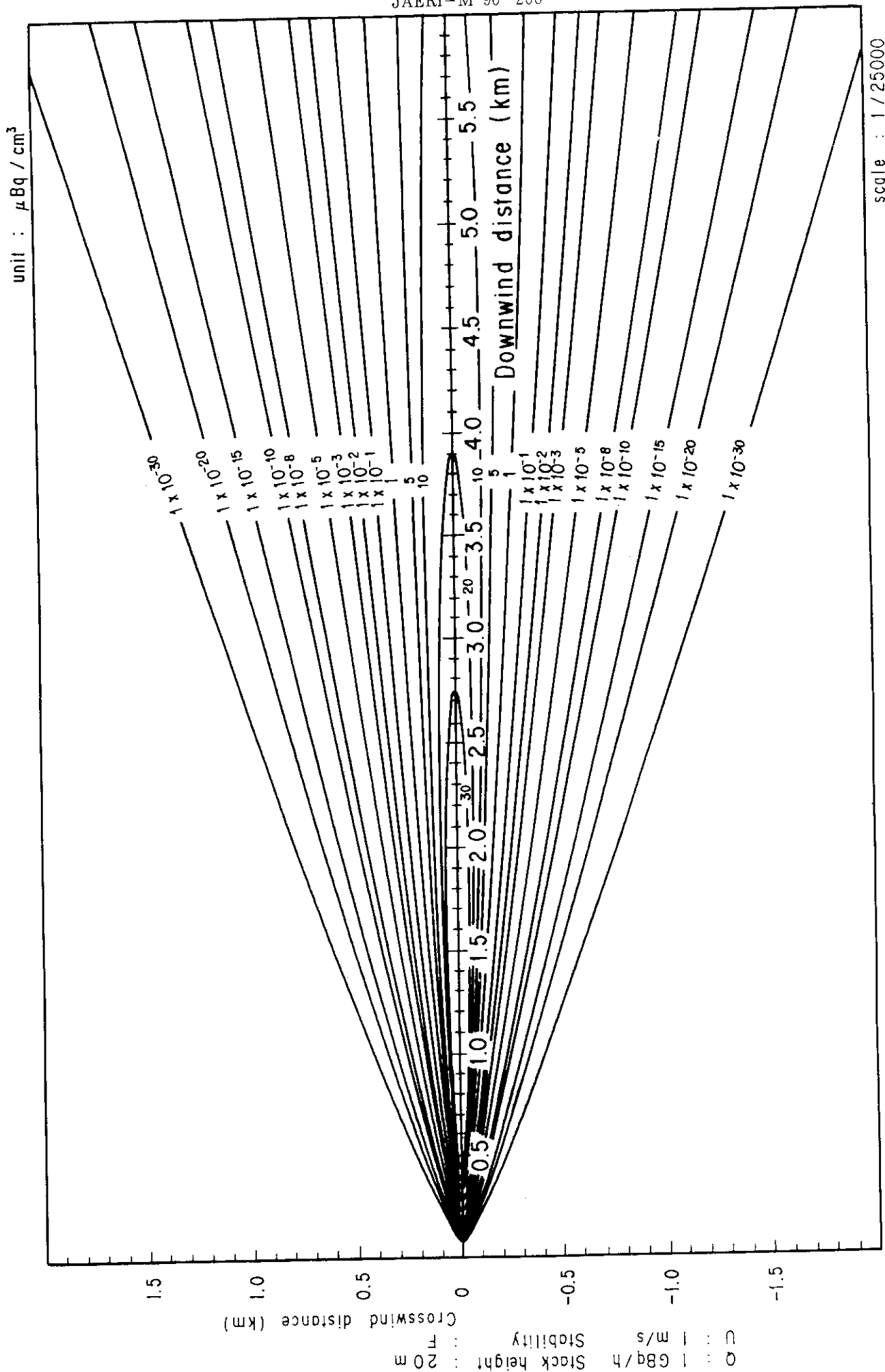


Fig. 2-3-6 (A) Isopleths of surface air concentration

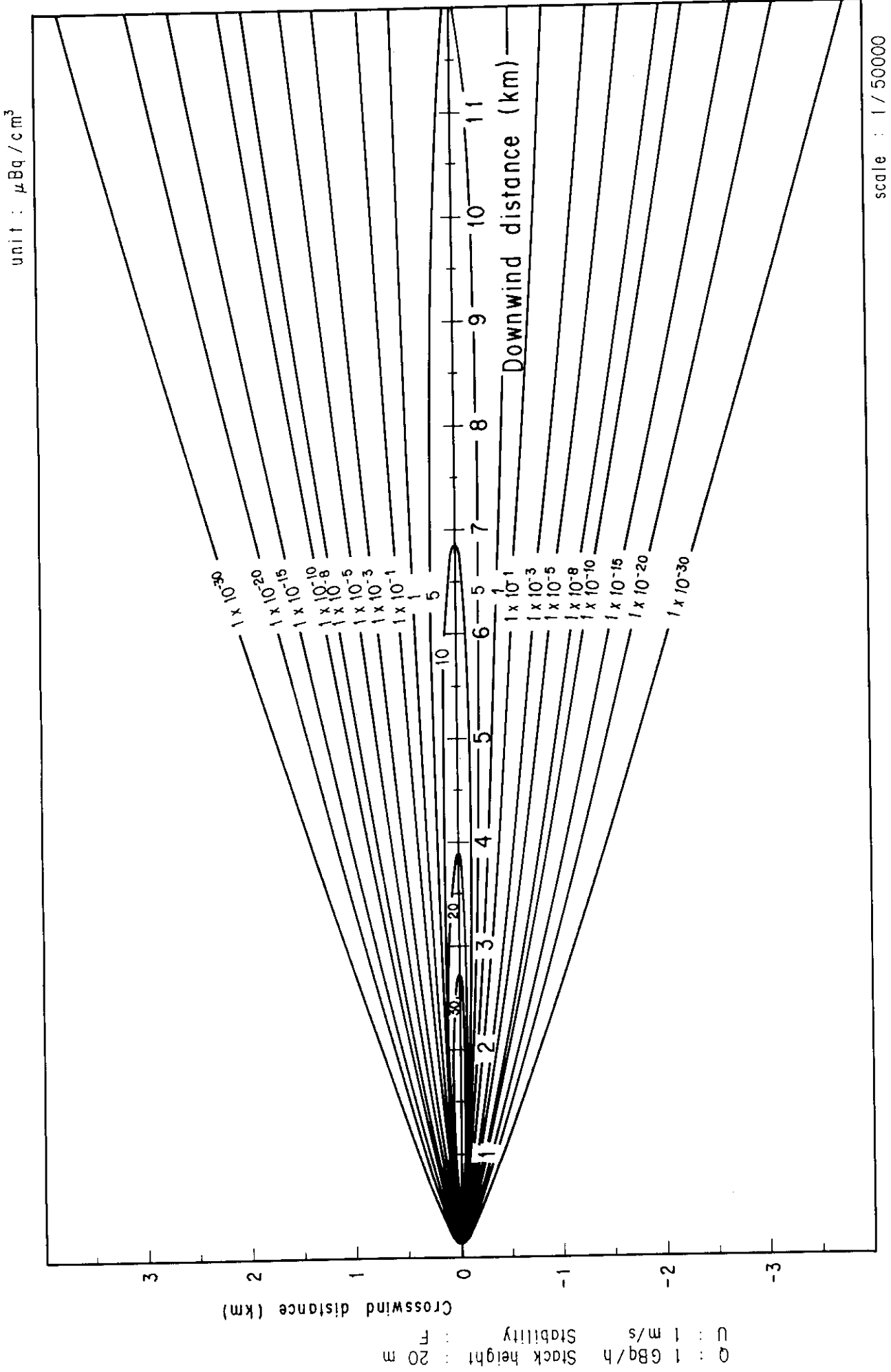


Fig. 2-3-6 (B) Isopleths of surface air concentration

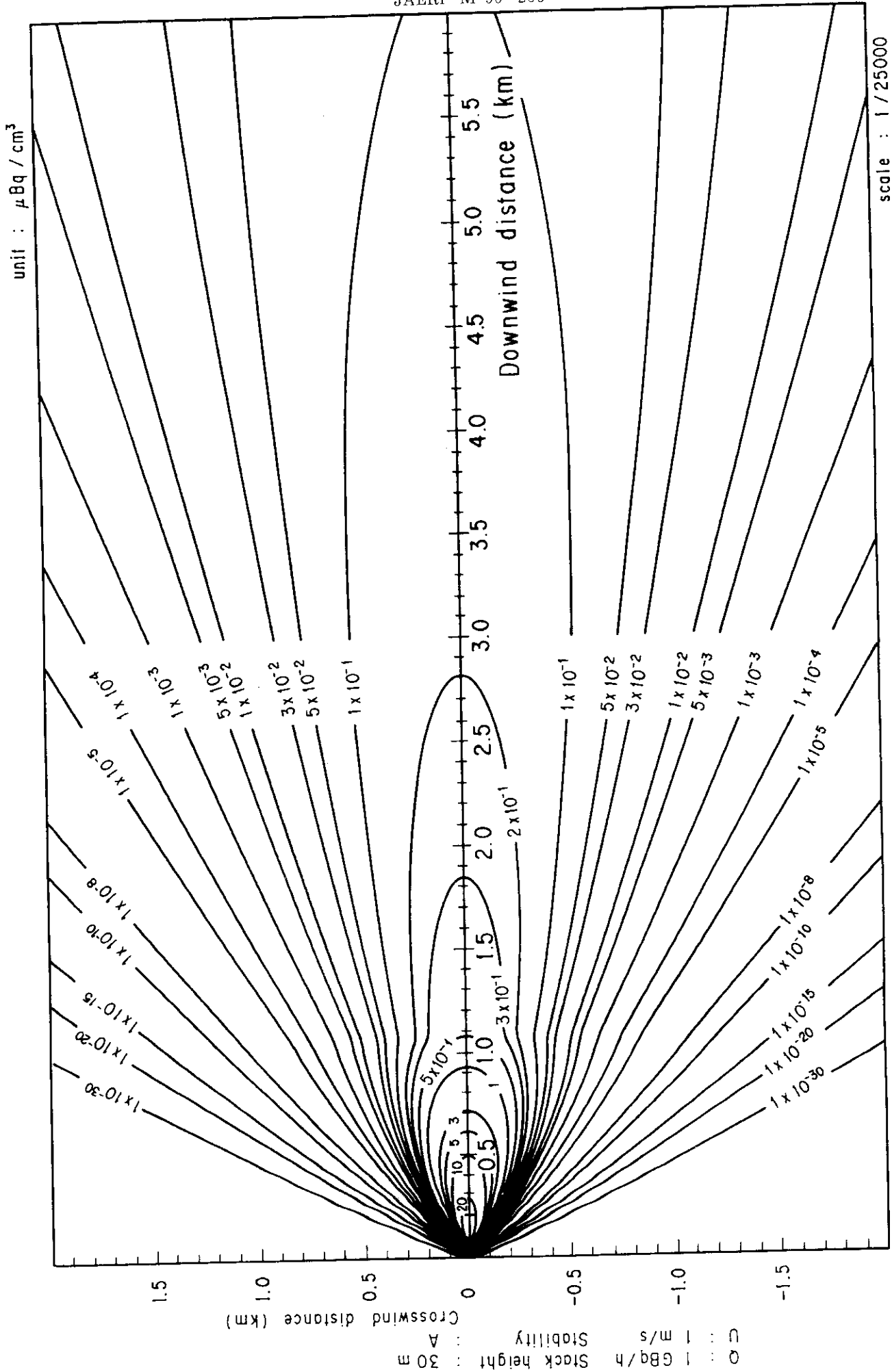


Fig. 2-4-1 (A) Isopleths of surface air concentration

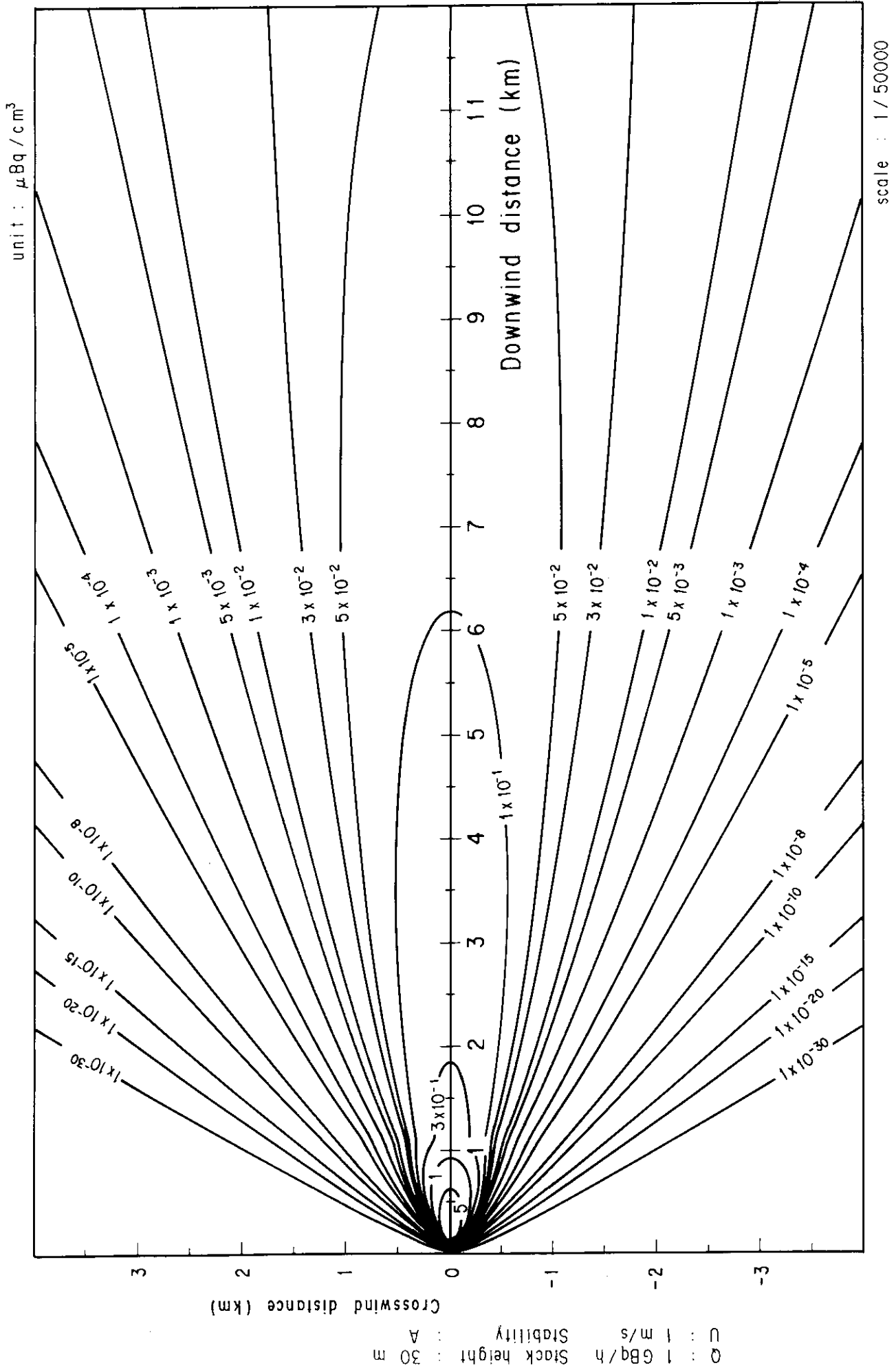


Fig. 2-4-1 (B) Isopleths of surface air concentration

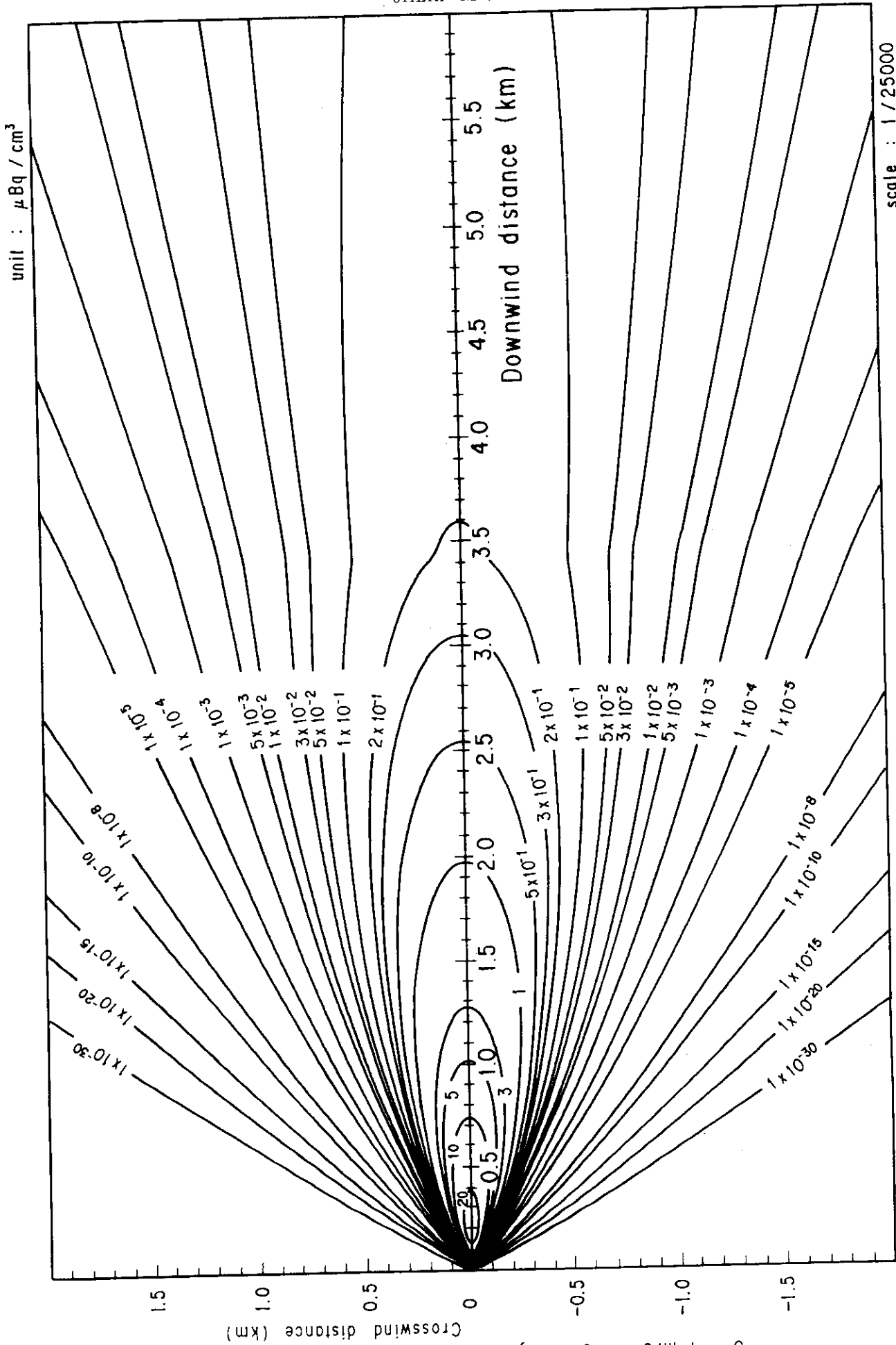


Fig.2-4-2 (A) Isopleths of surface air concentration

Q : 1 GBq/h
Stack height : 30 m
Stability : B
 U : 1 m/s

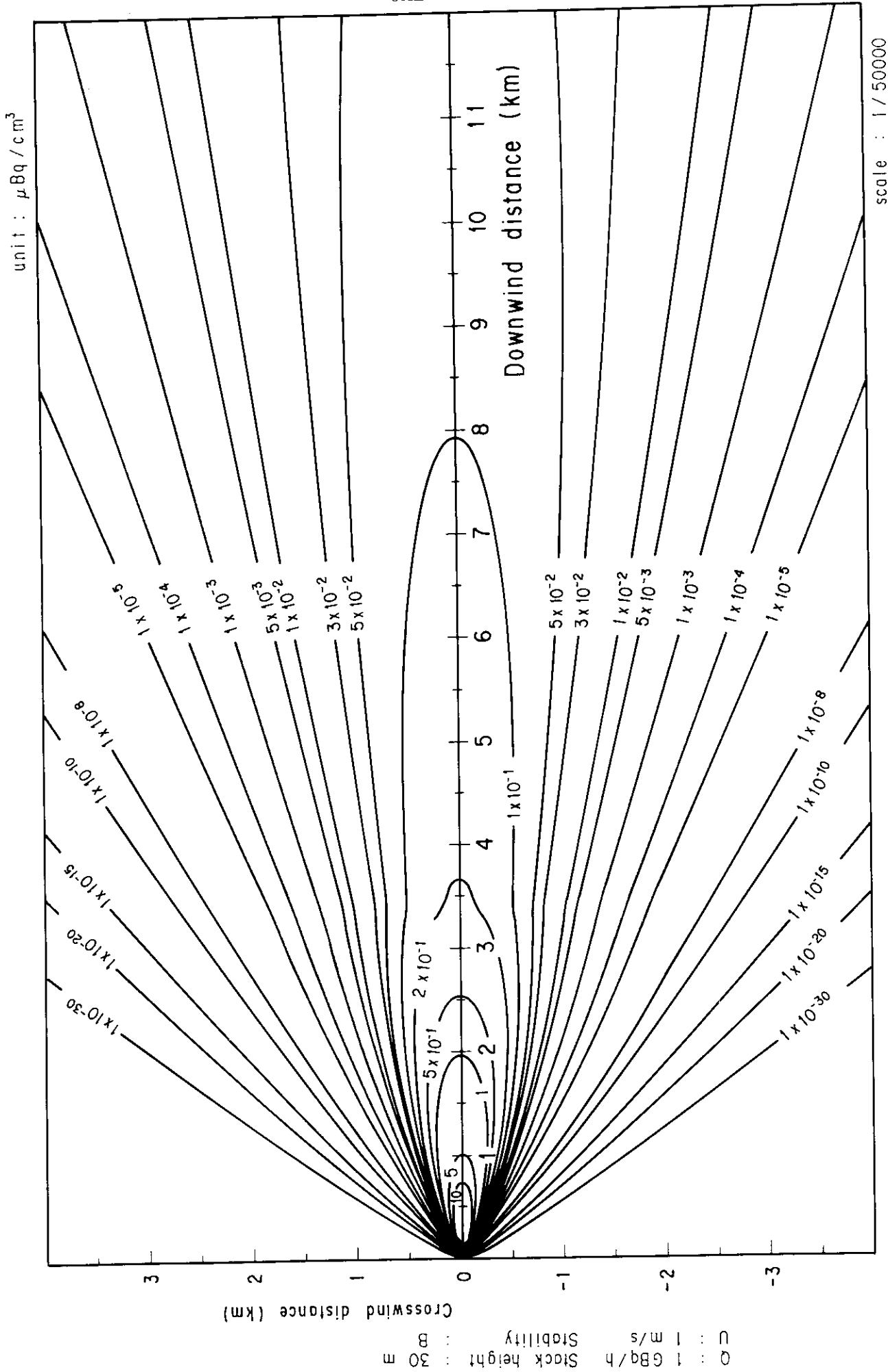


Fig. 2-4-2 (B) Isopleths of surface air concentration

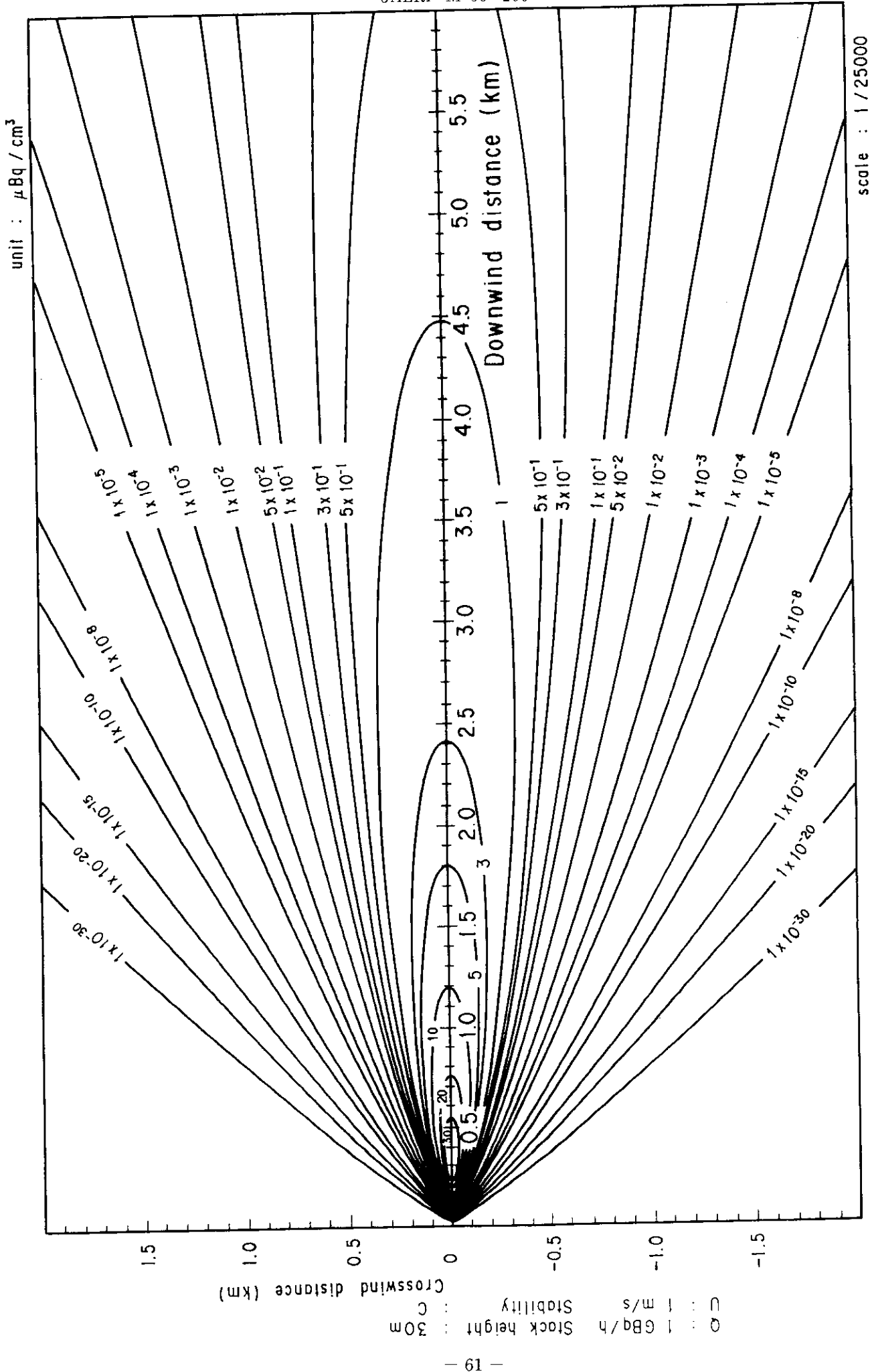


Fig. 2-4-3 (A) Isopleths of surface air concentration

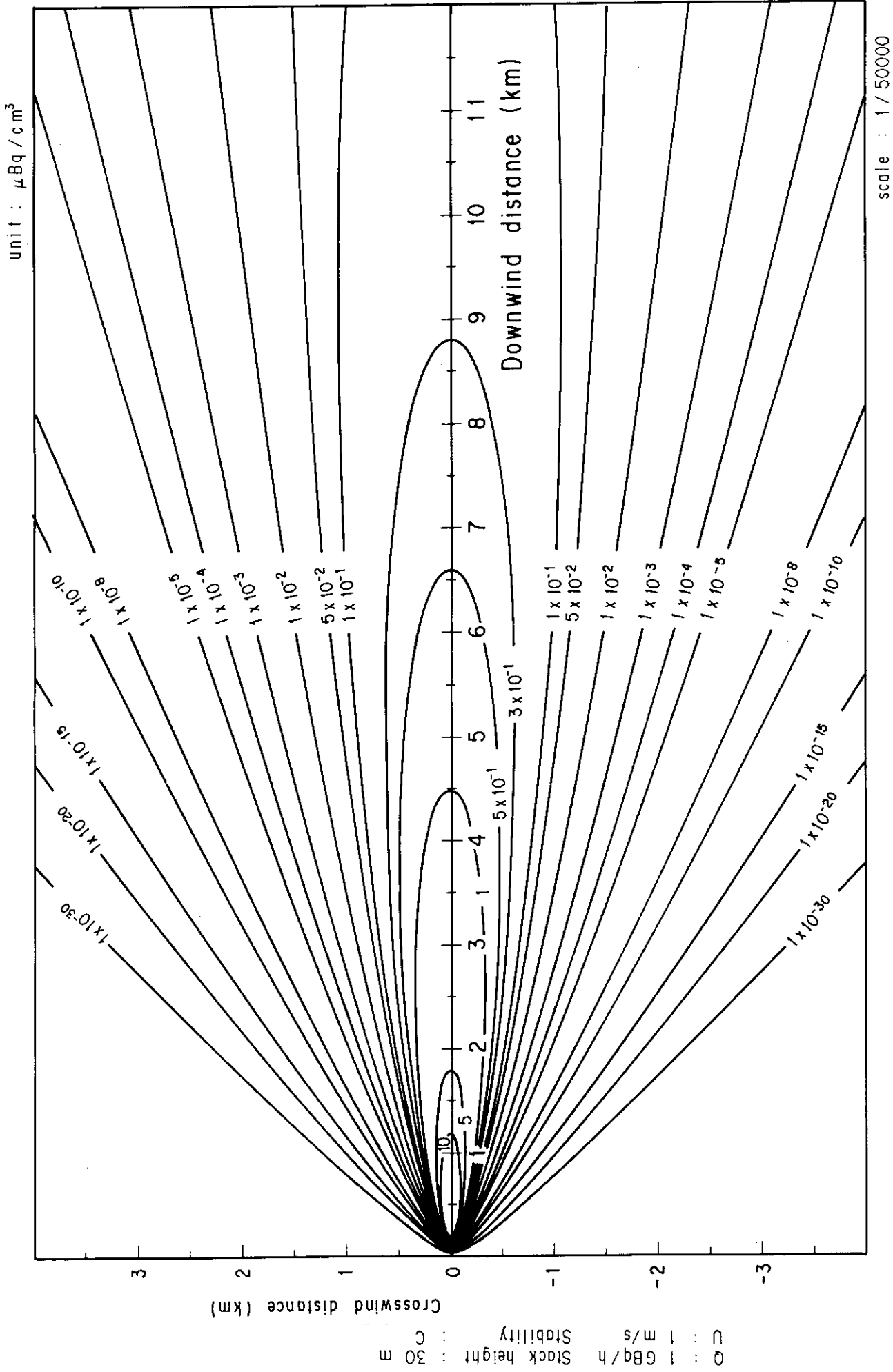


Fig. 2-4-3 (B) Isopleths of surface air concentration

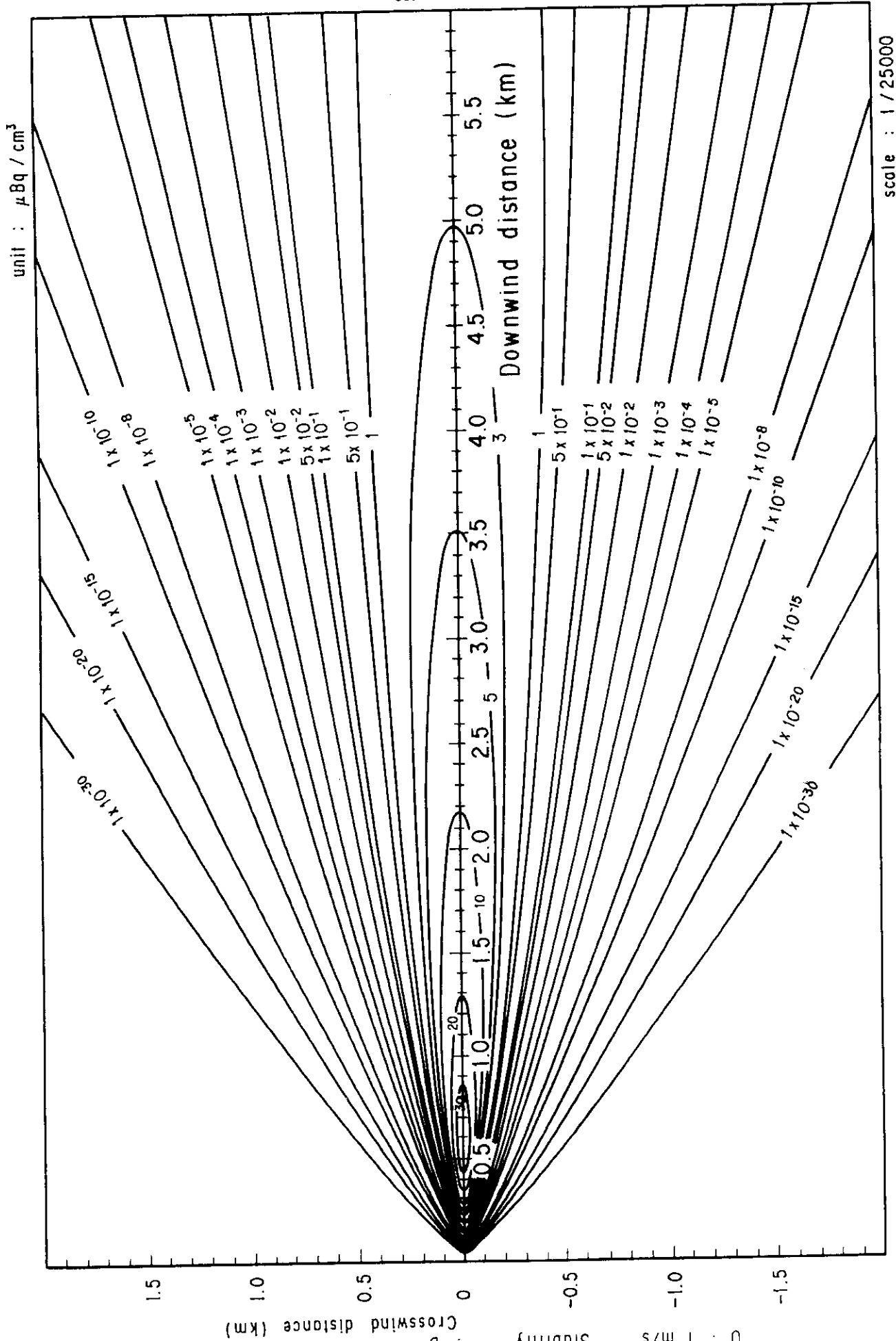


Fig. 2-4-4 (A) Isopleths of surface air concentration

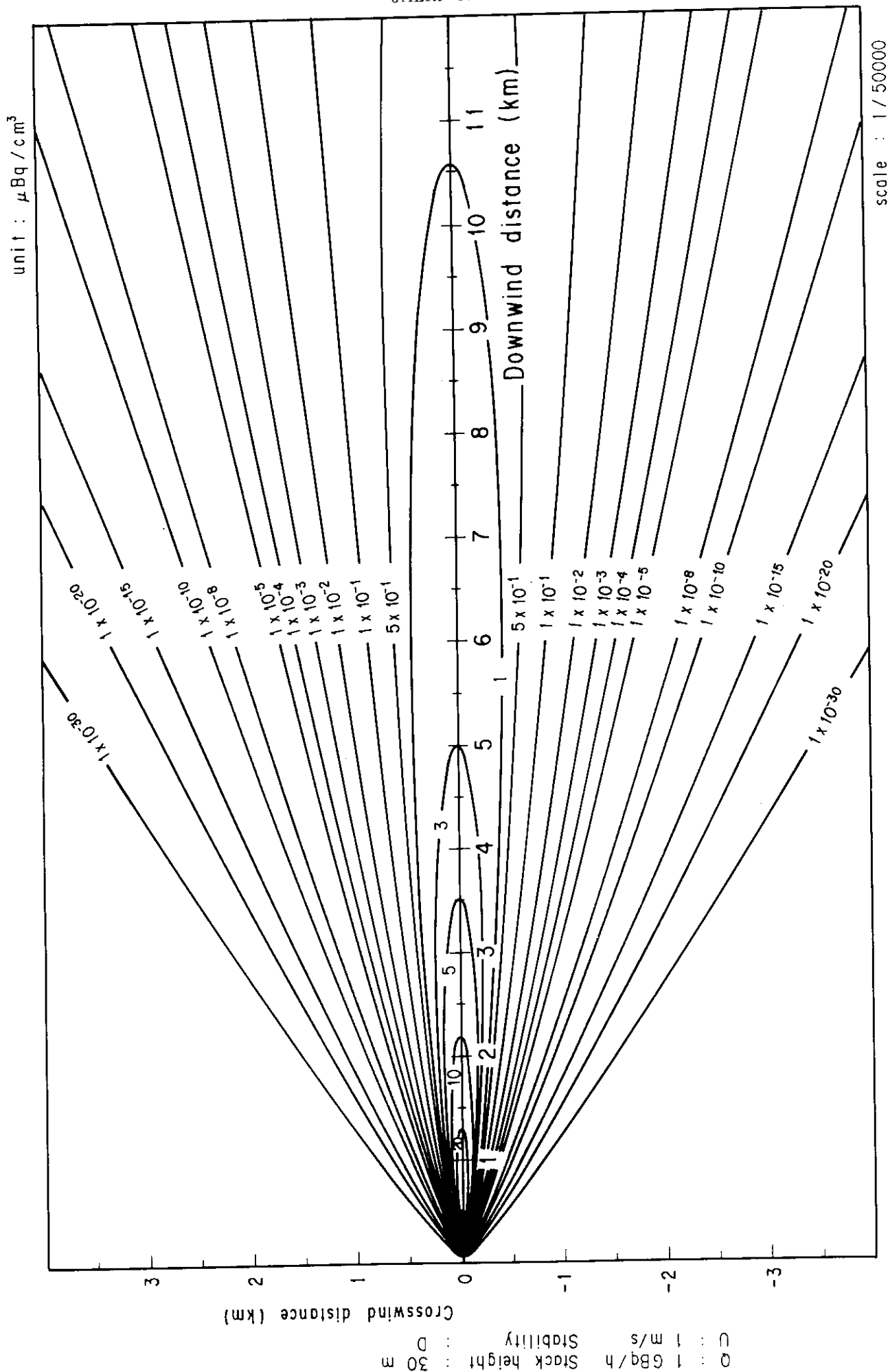


Fig. 2-4-4 (B) Isopleths of surface air concentration

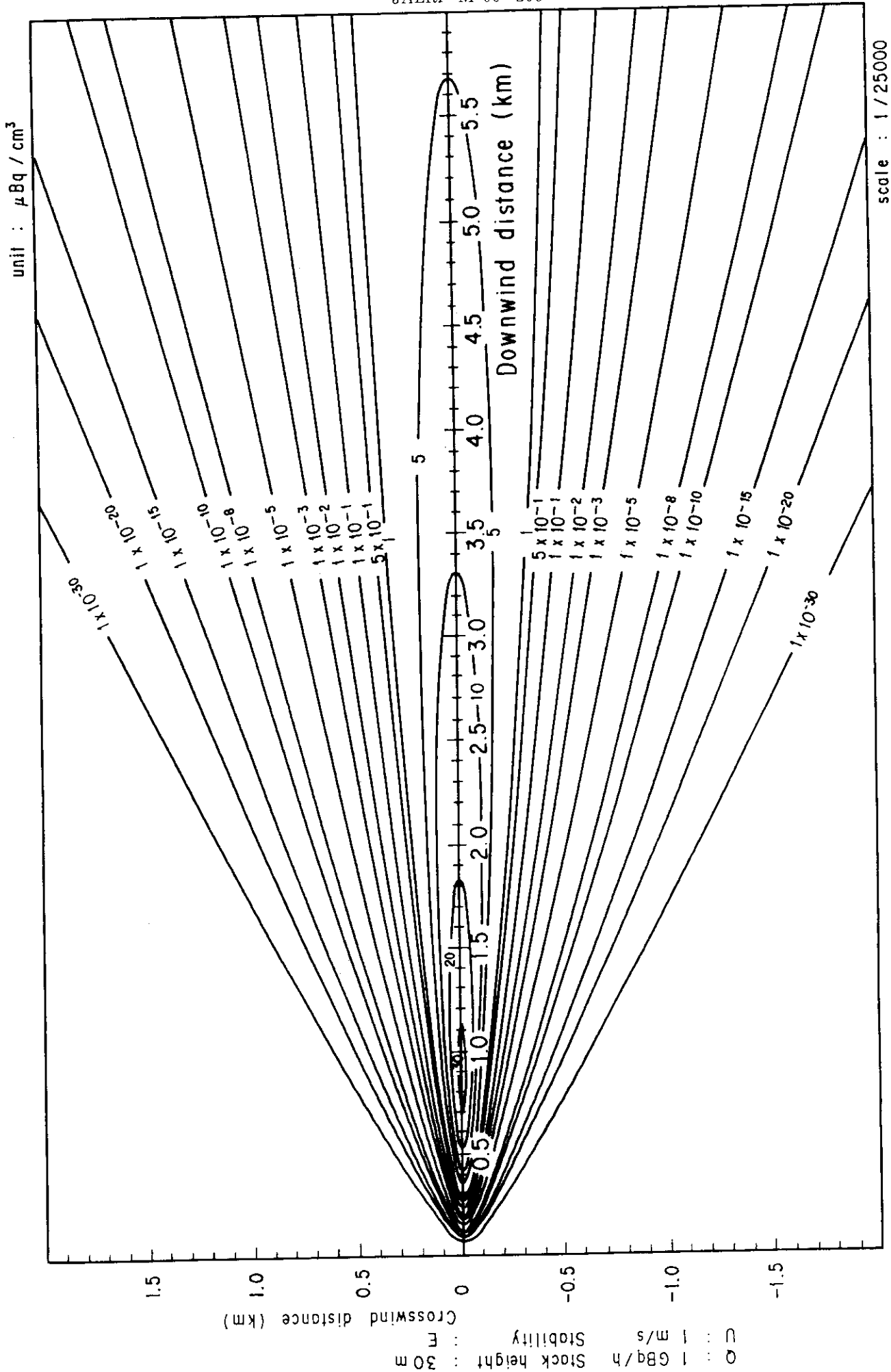


Fig. 2-4-5 (A) Isopleths of surface air concentration

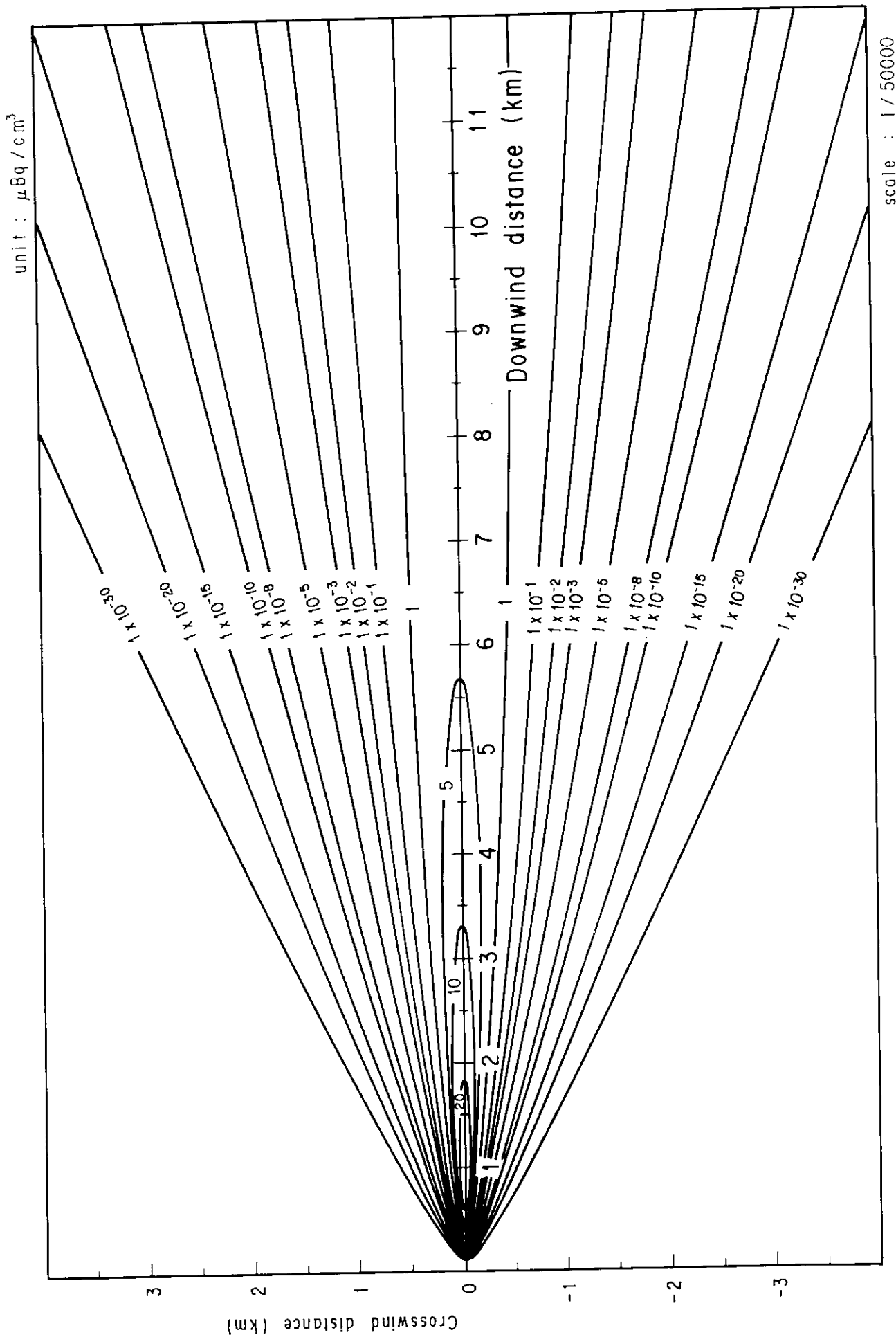
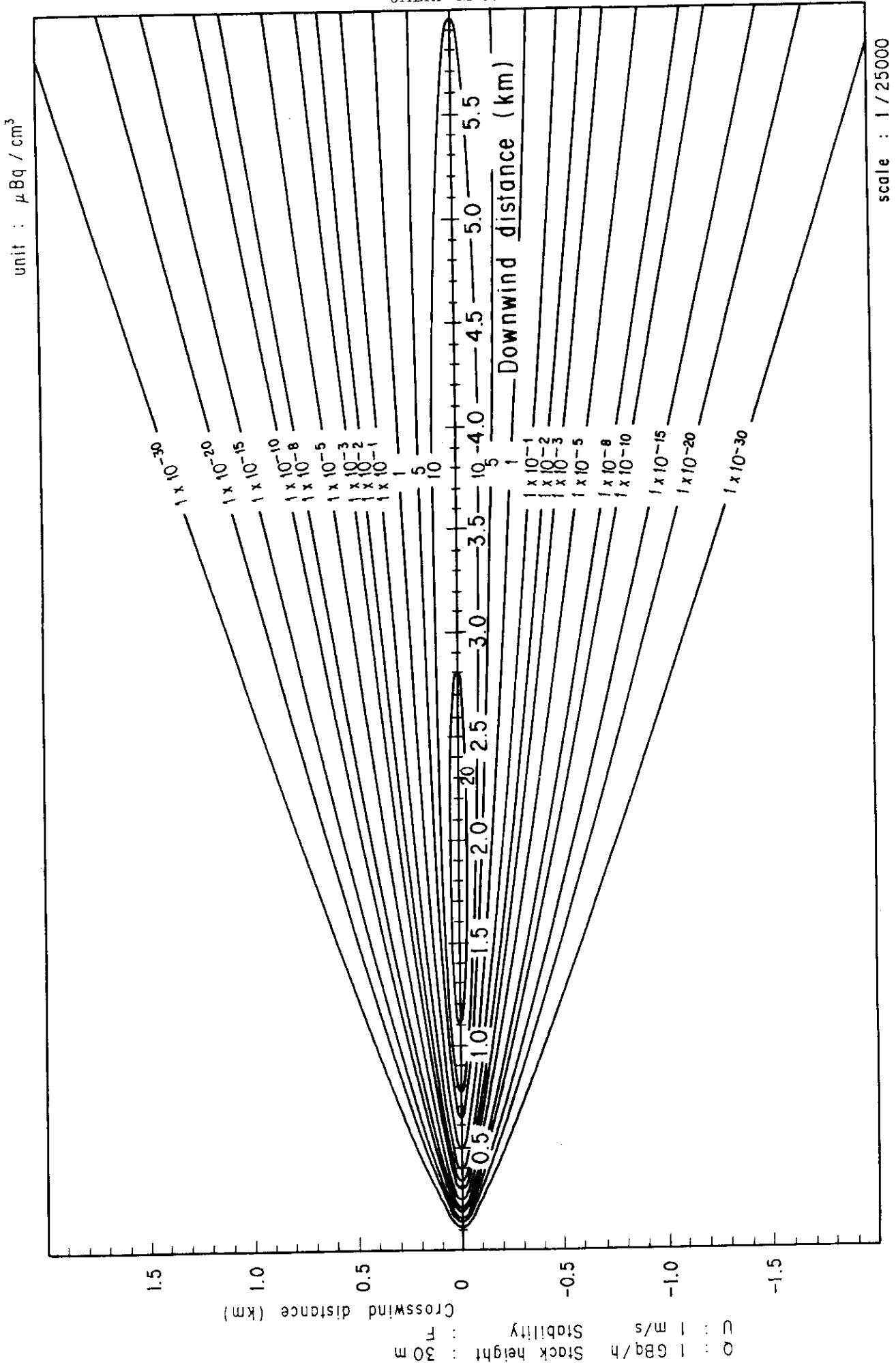
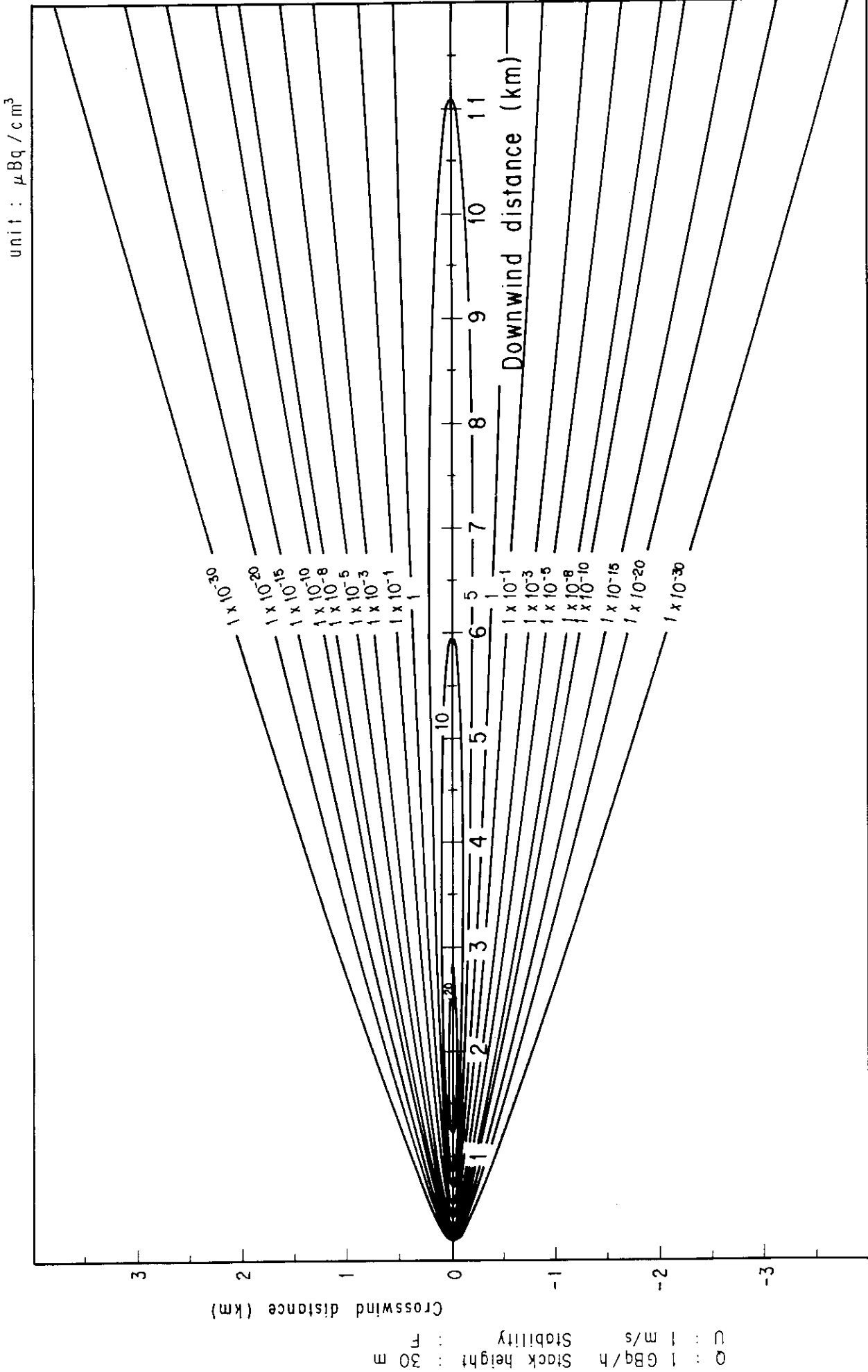


Fig. 2-4-5 (B) Isopleths of surface air concentration



scale : 1 / 25000

Fig. 2-4-6 (A) Isopleths of surface air concentration



scale : 1 / 50000

Fig. 2-4-6 (B) Isopleths of surface air concentration

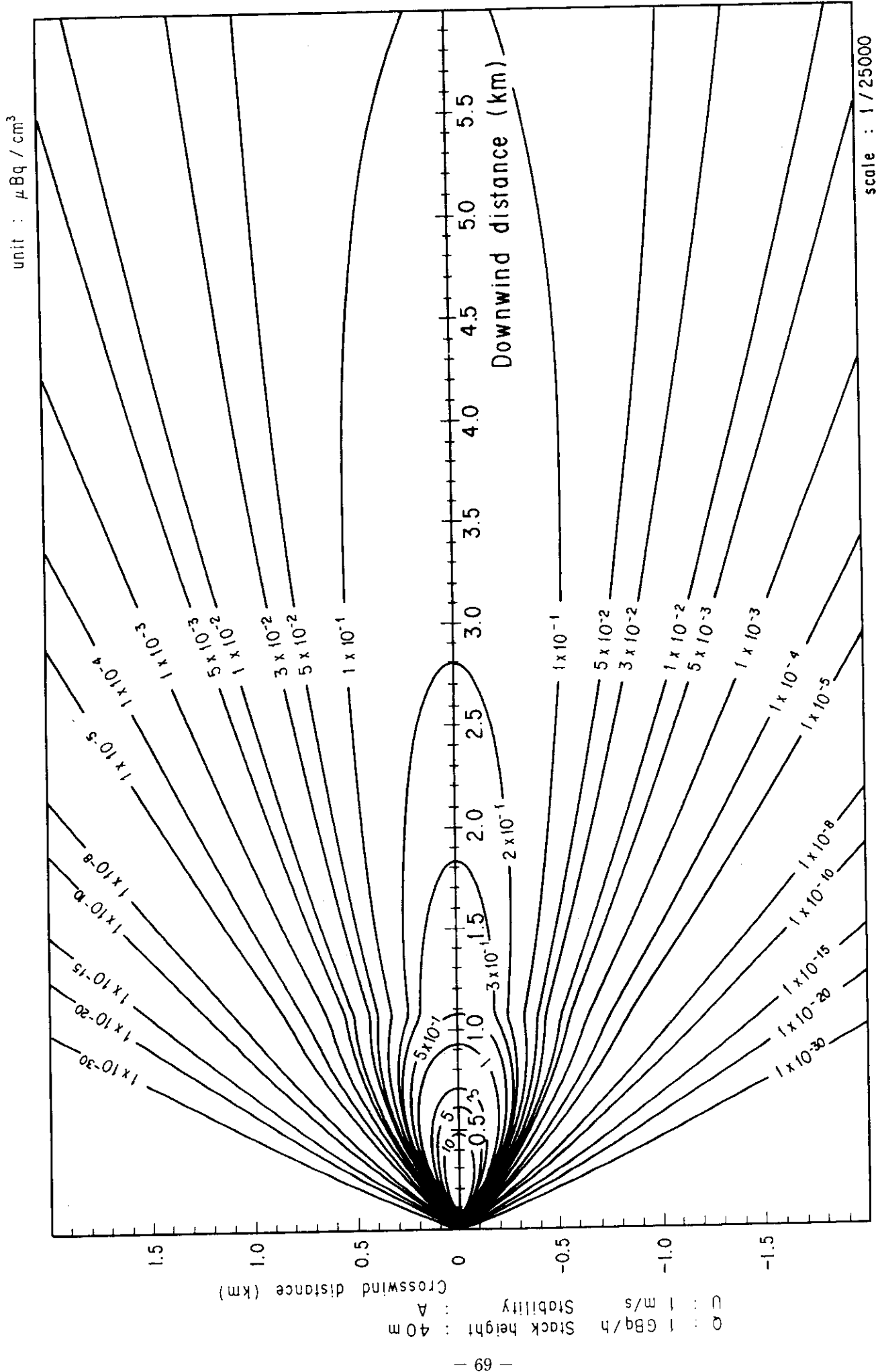


Fig. 2-5-1 (A) Isopleths of surface air concentration

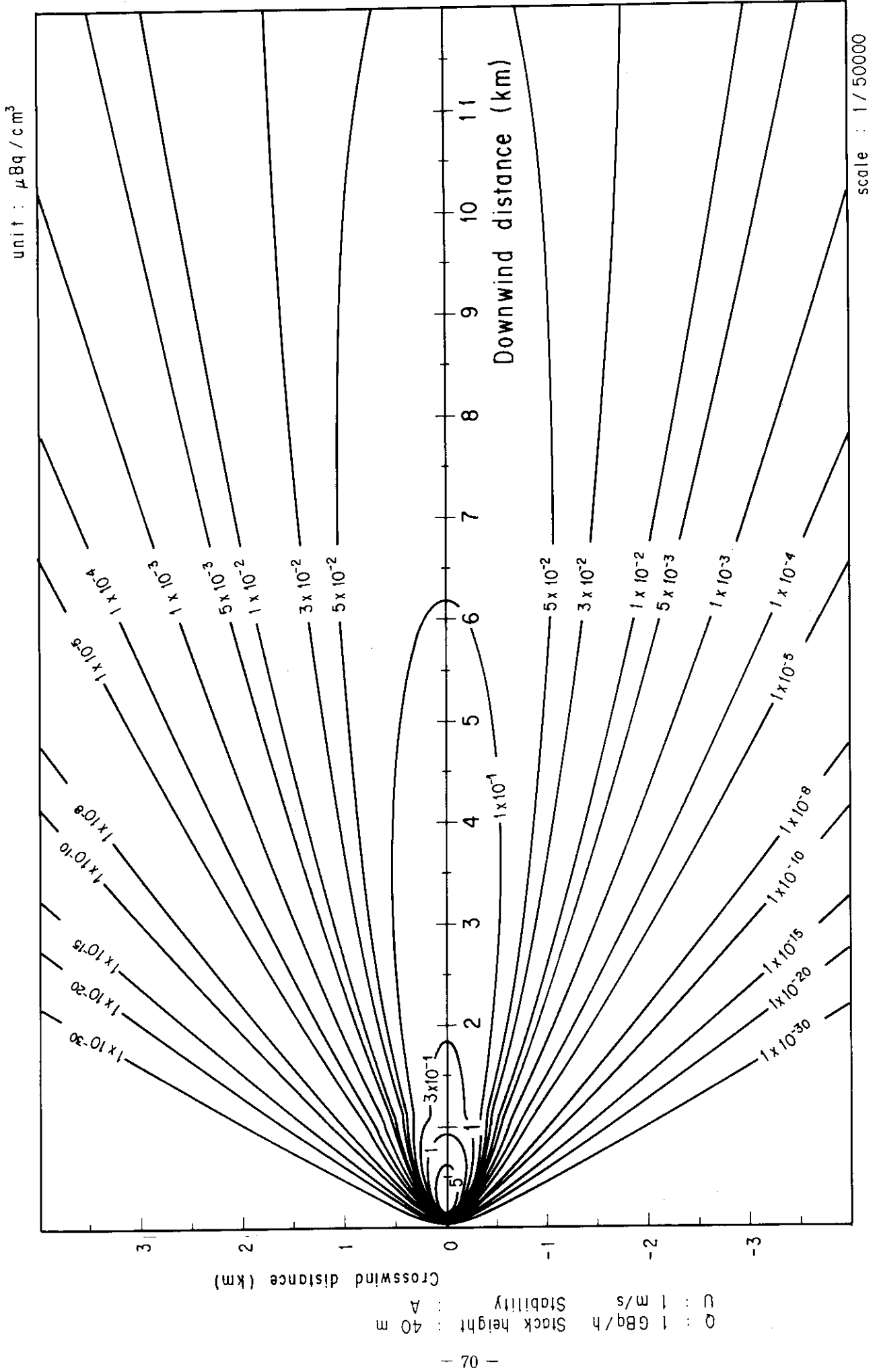


Fig. 2-5-1 (B) Isopleths of surface air concentration

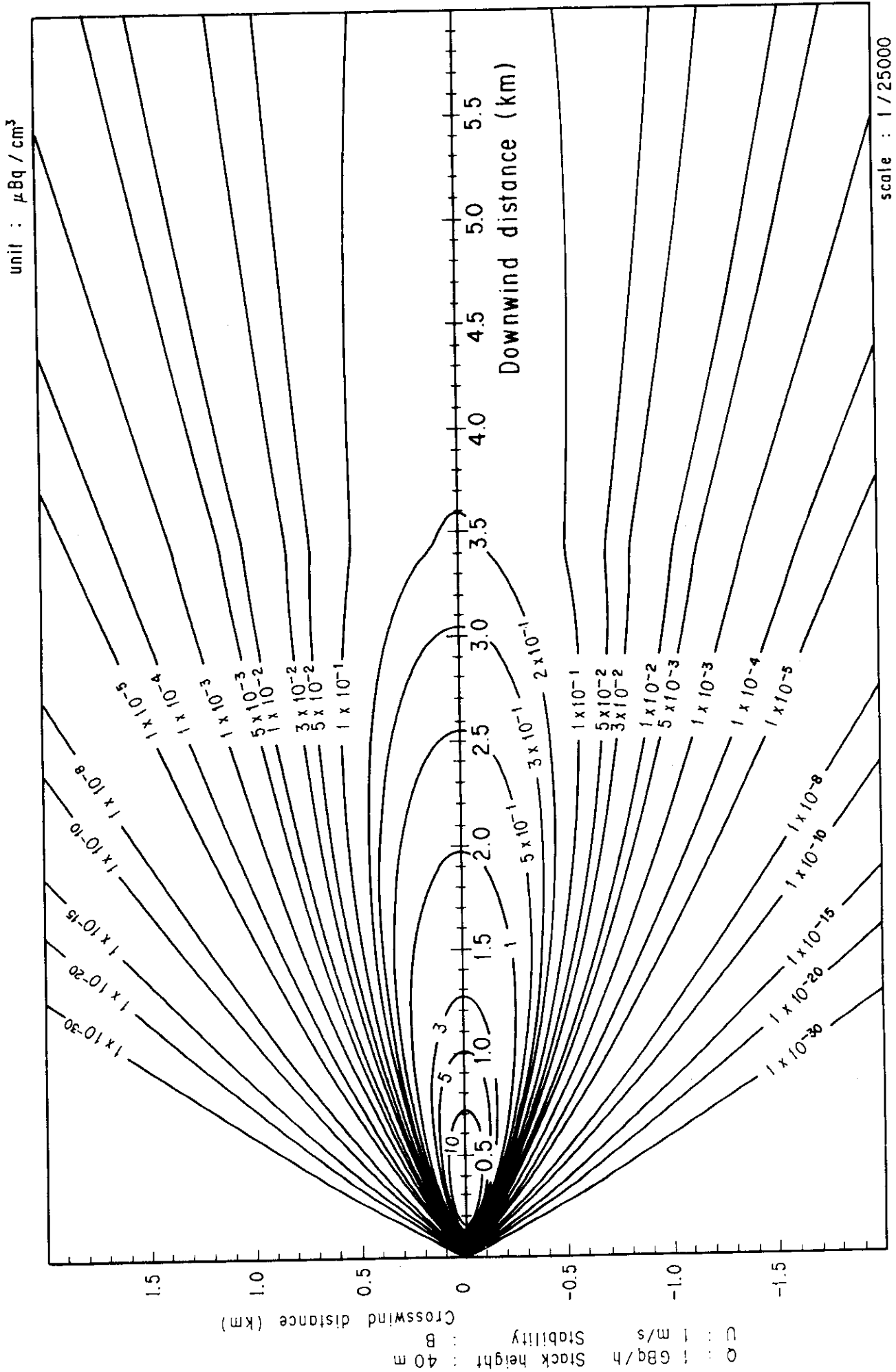


Fig. 2-5-2 (A) Isopleths of surface air concentration

Q : 1 GBq/h
 Stack height : 40 m
 Stability : B
 U : 1 m/s

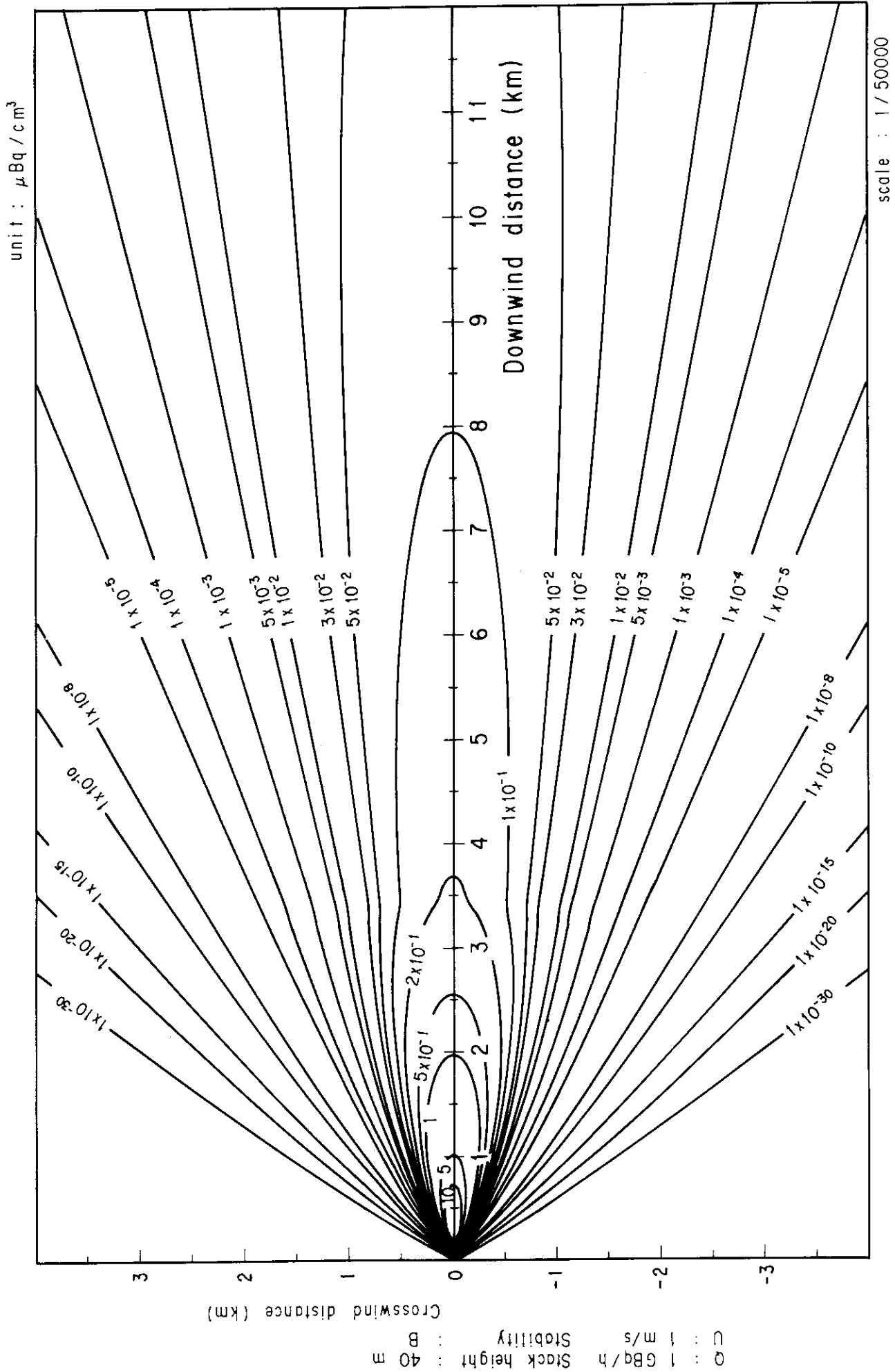


Fig. 2-5-2 (B) Isopleths of surface air concentration

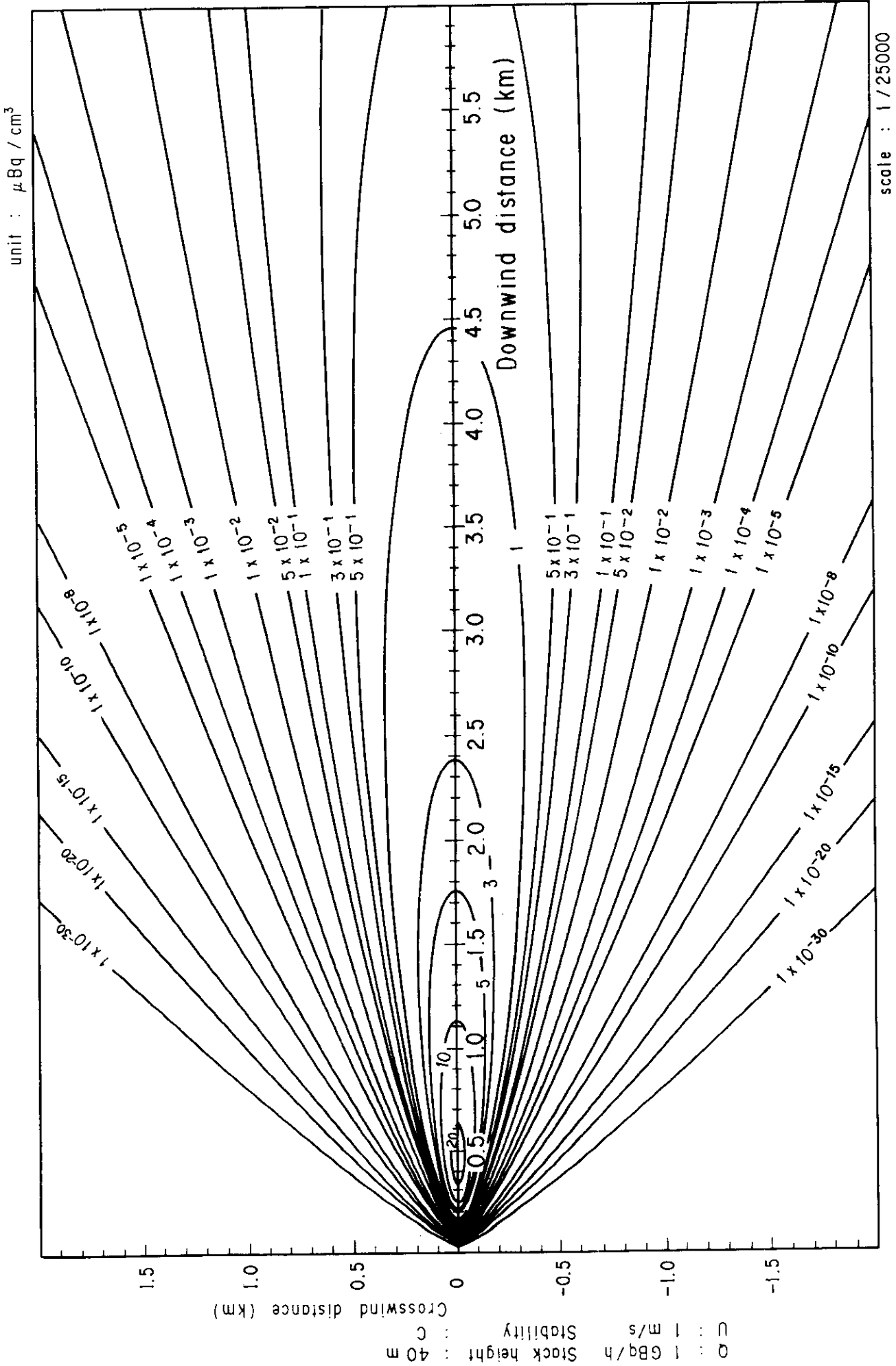


Fig. 2-5-3 (A) Isopleths of surface air concentration

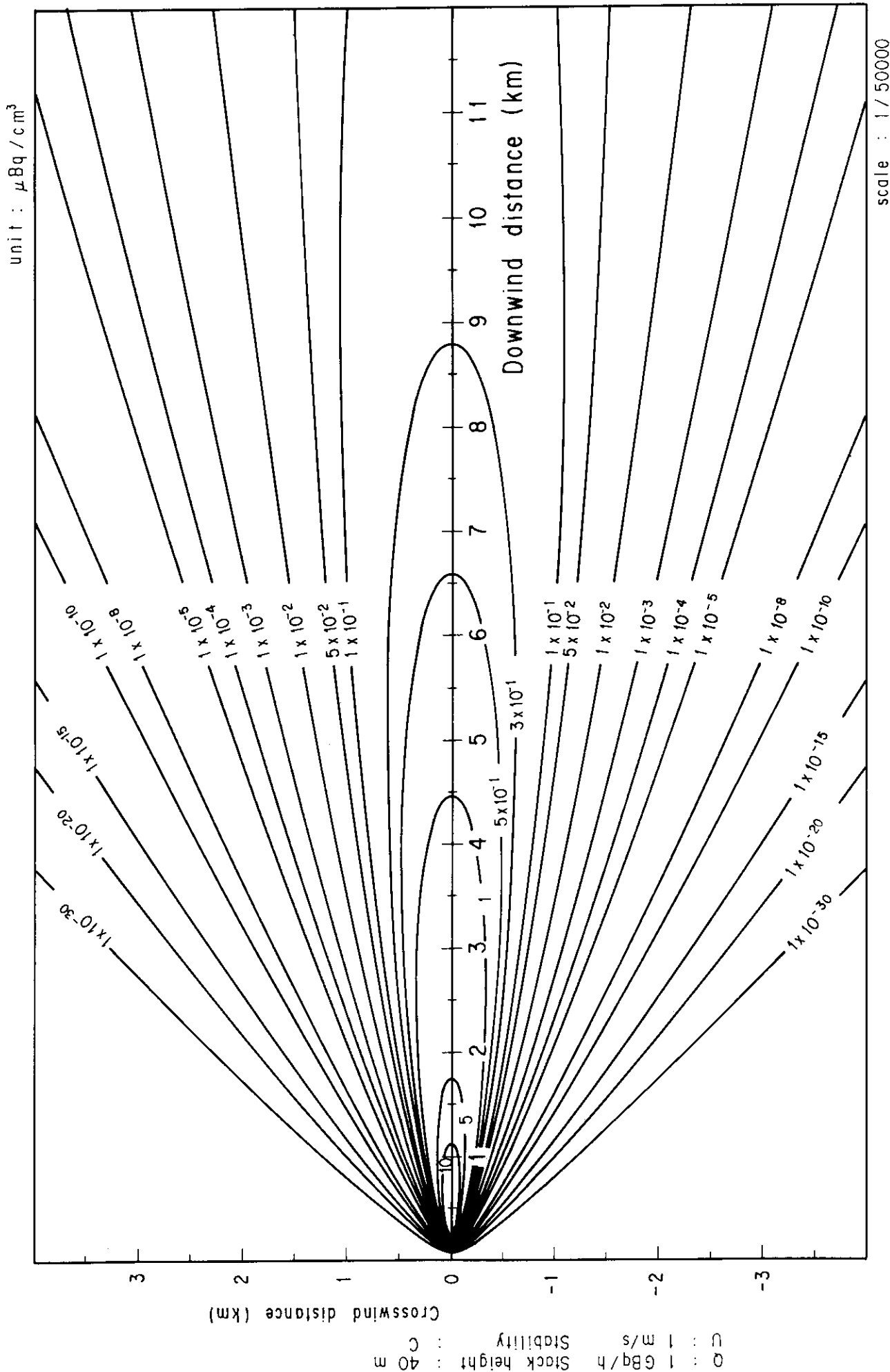


Fig. 2-5-3 (B) Isopleths of surface air concentration

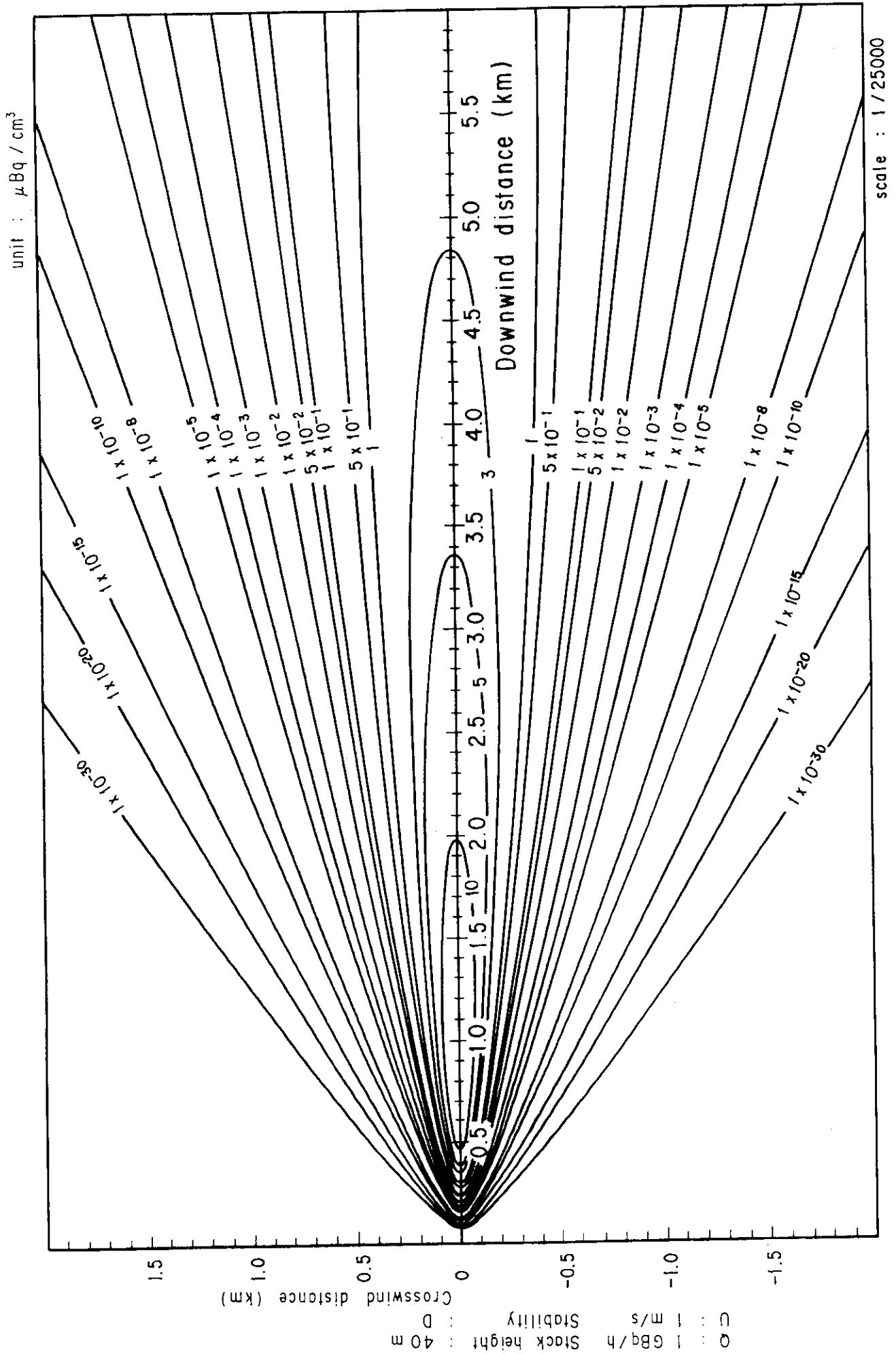


Fig. 2-5-4 (A) Isopleths of surface air concentration

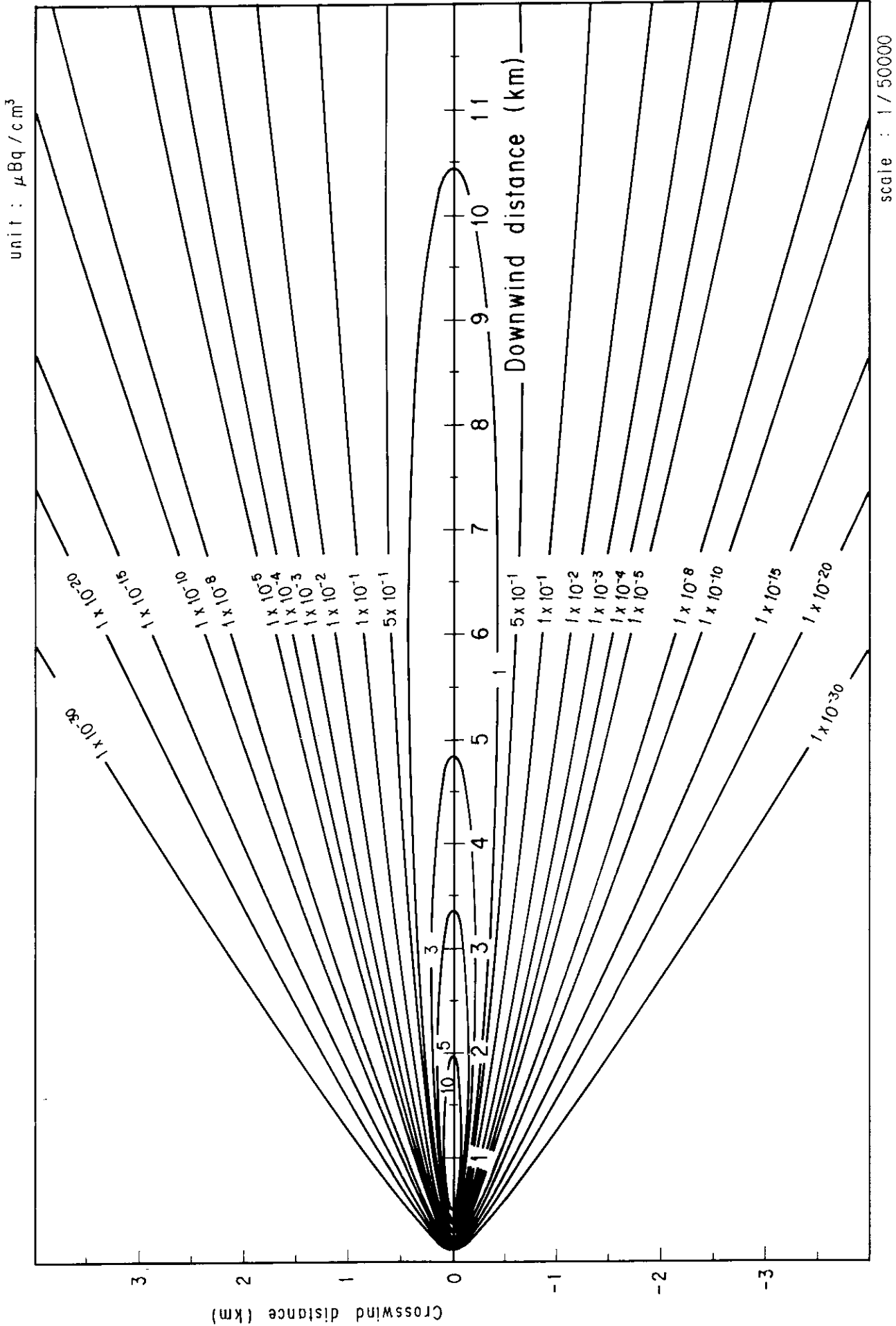


Fig. 2-5-4 (B) Isopleths of surface air concentration

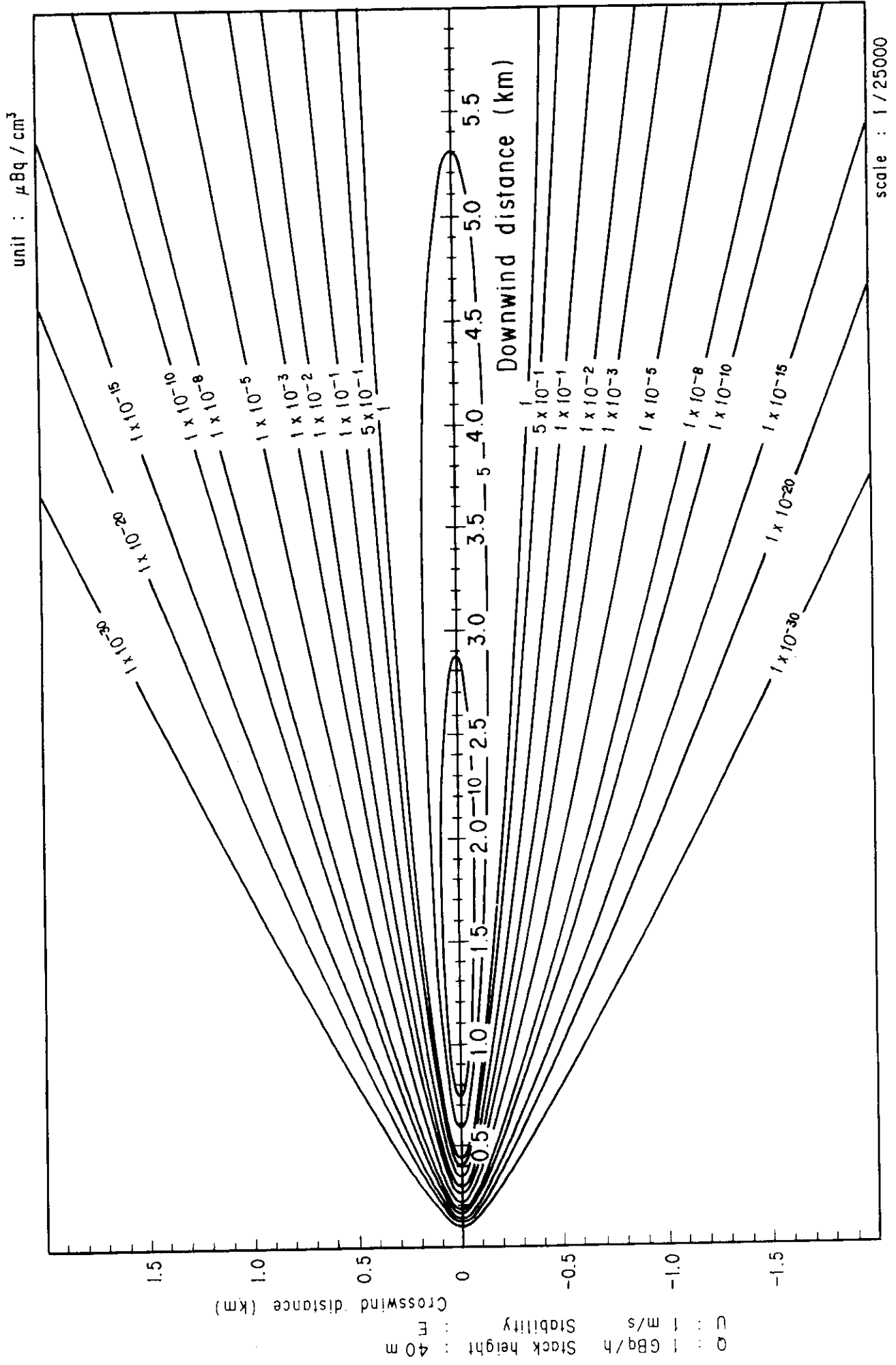


Fig. 2-5-5 (A) Isopleths of surface air concentration

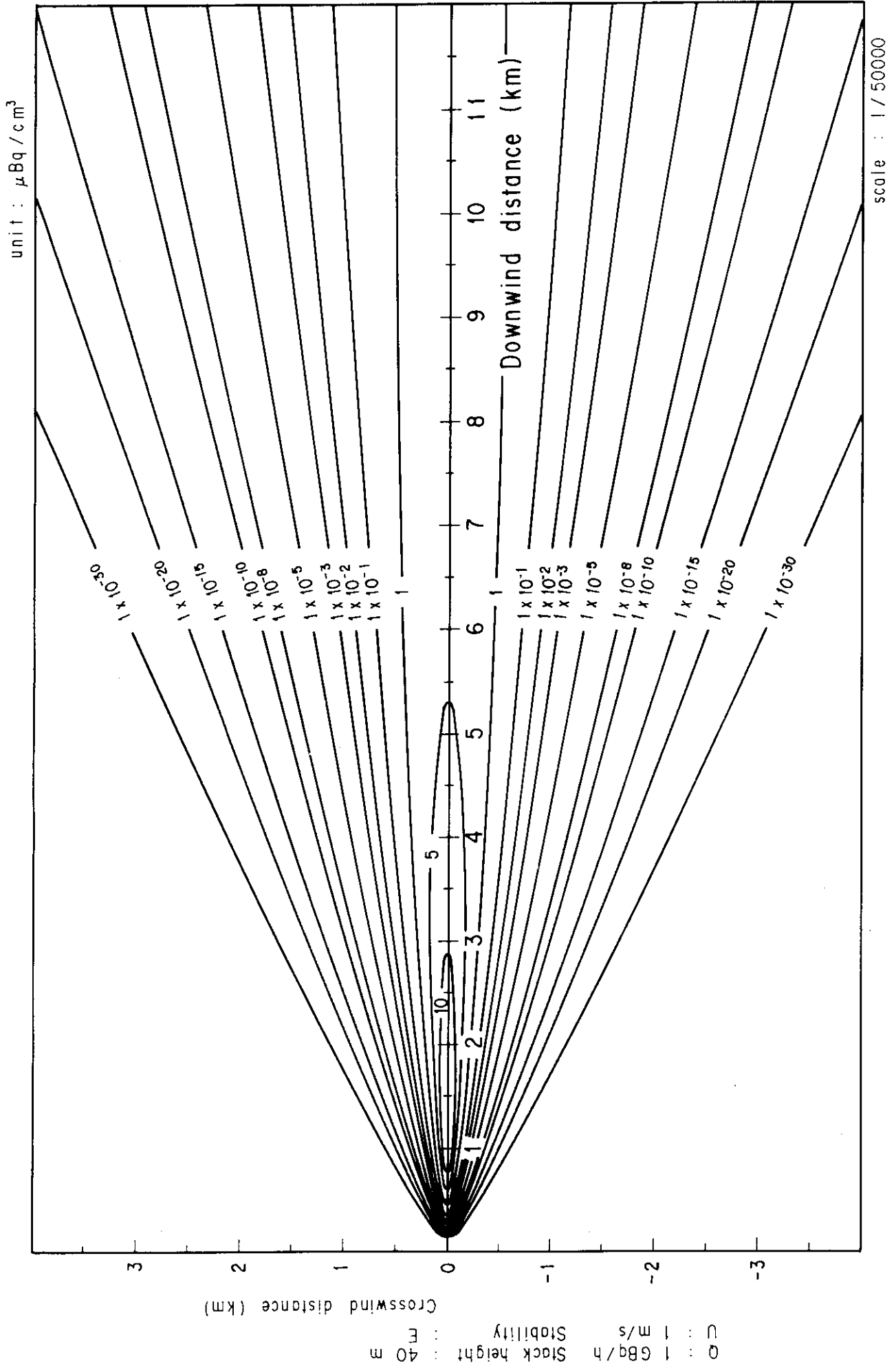


Fig. 2-5-5 (B) Isopleths of surface air concentration

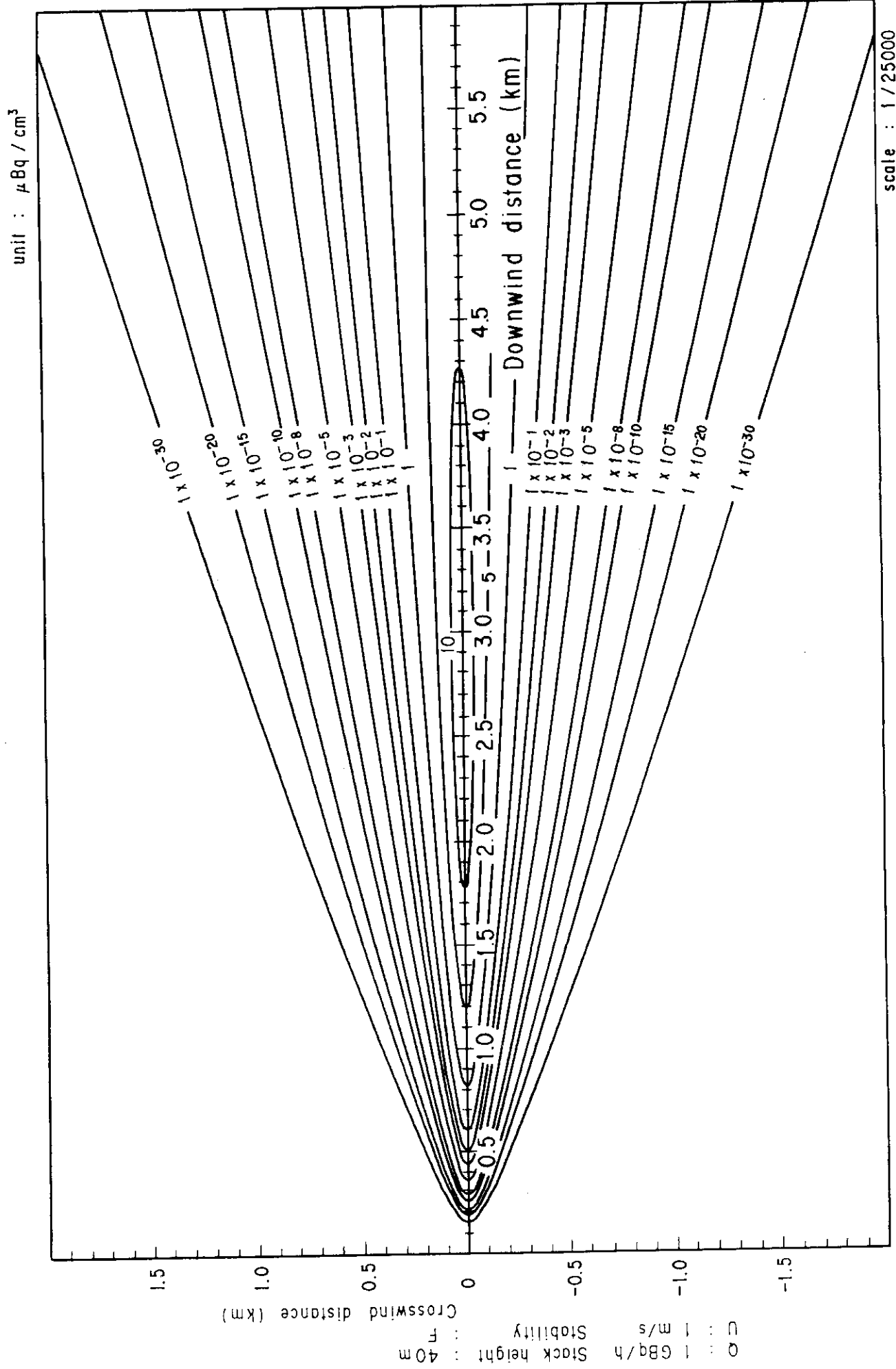


Fig.2-5-6 (A) Isopleths of surface air concentration

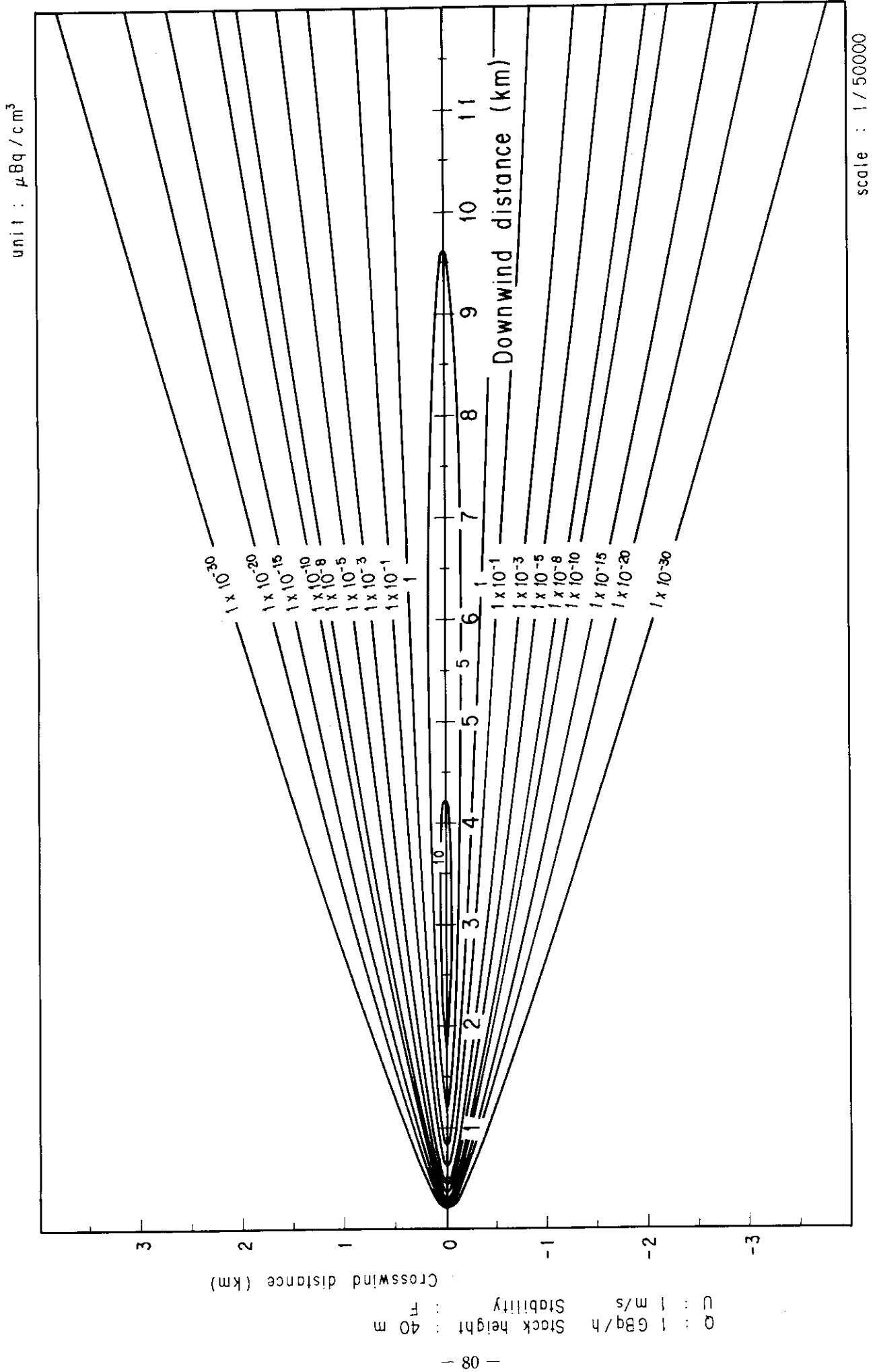


Fig. 2-5-6 (B) Isopleths of surface air concentration

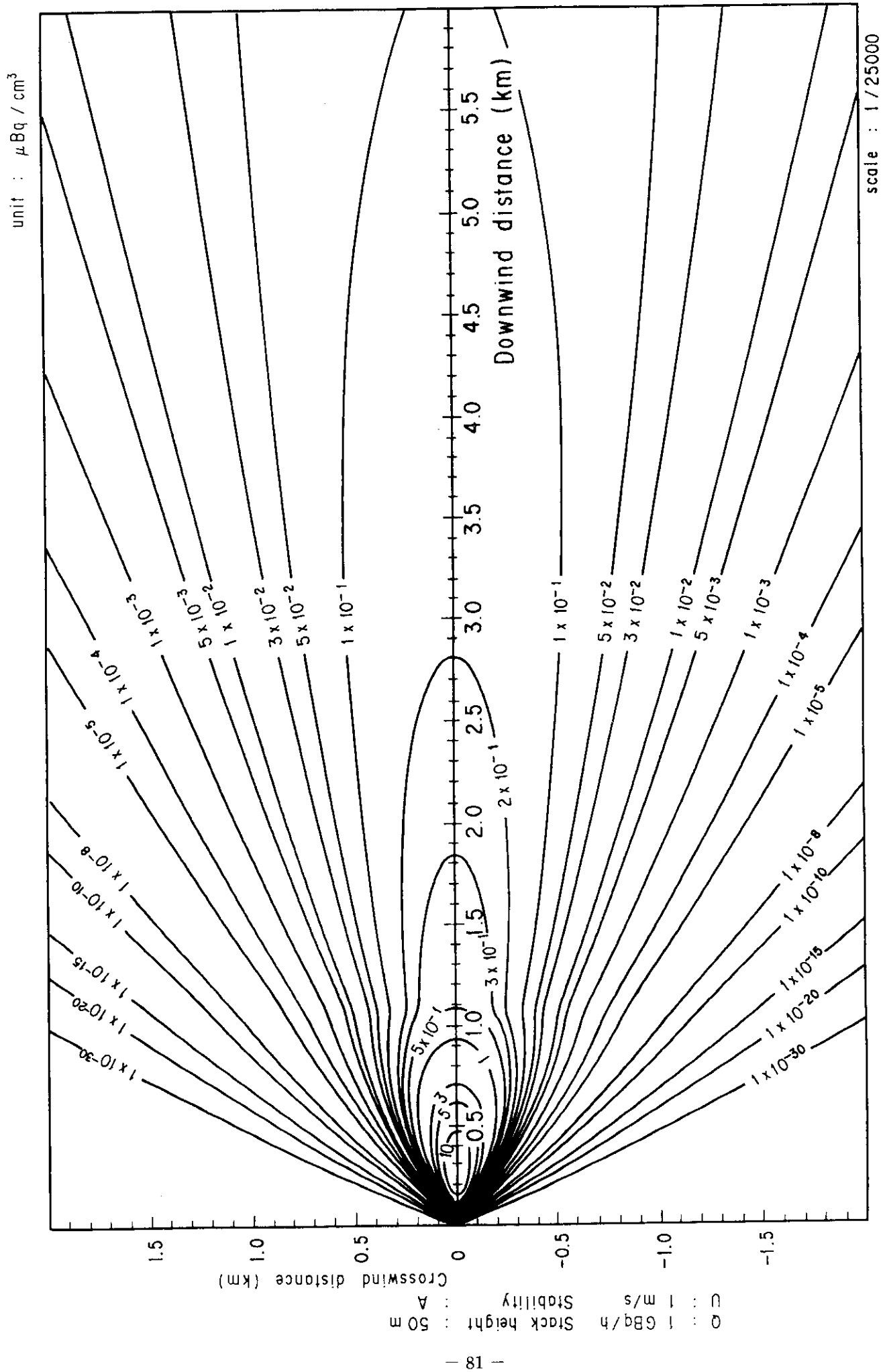


Fig. 2-6-1 (A) Isopleths of surface air concentration

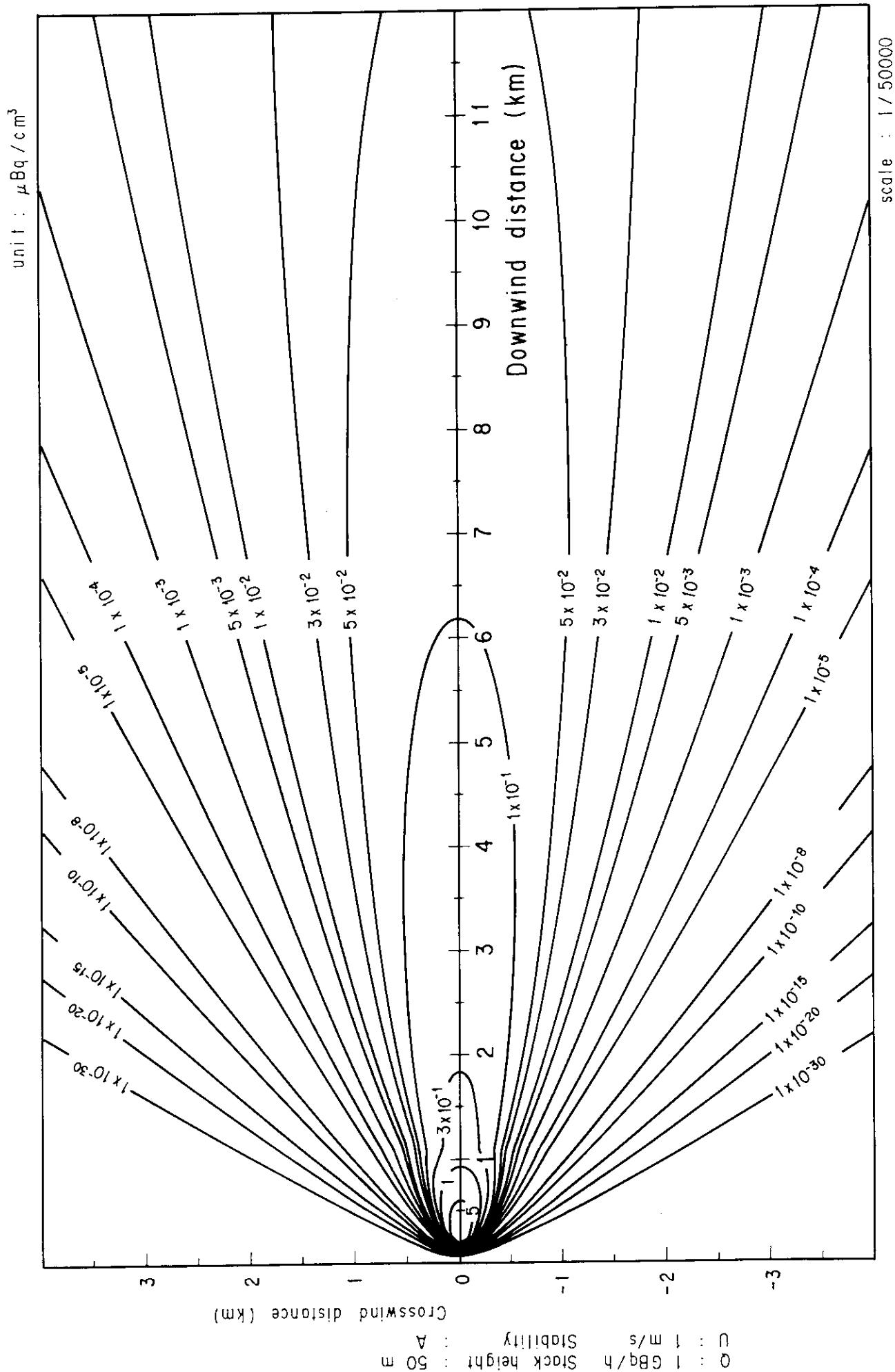


Fig. 2-6-1 (B) Isopleths of surface air concentration

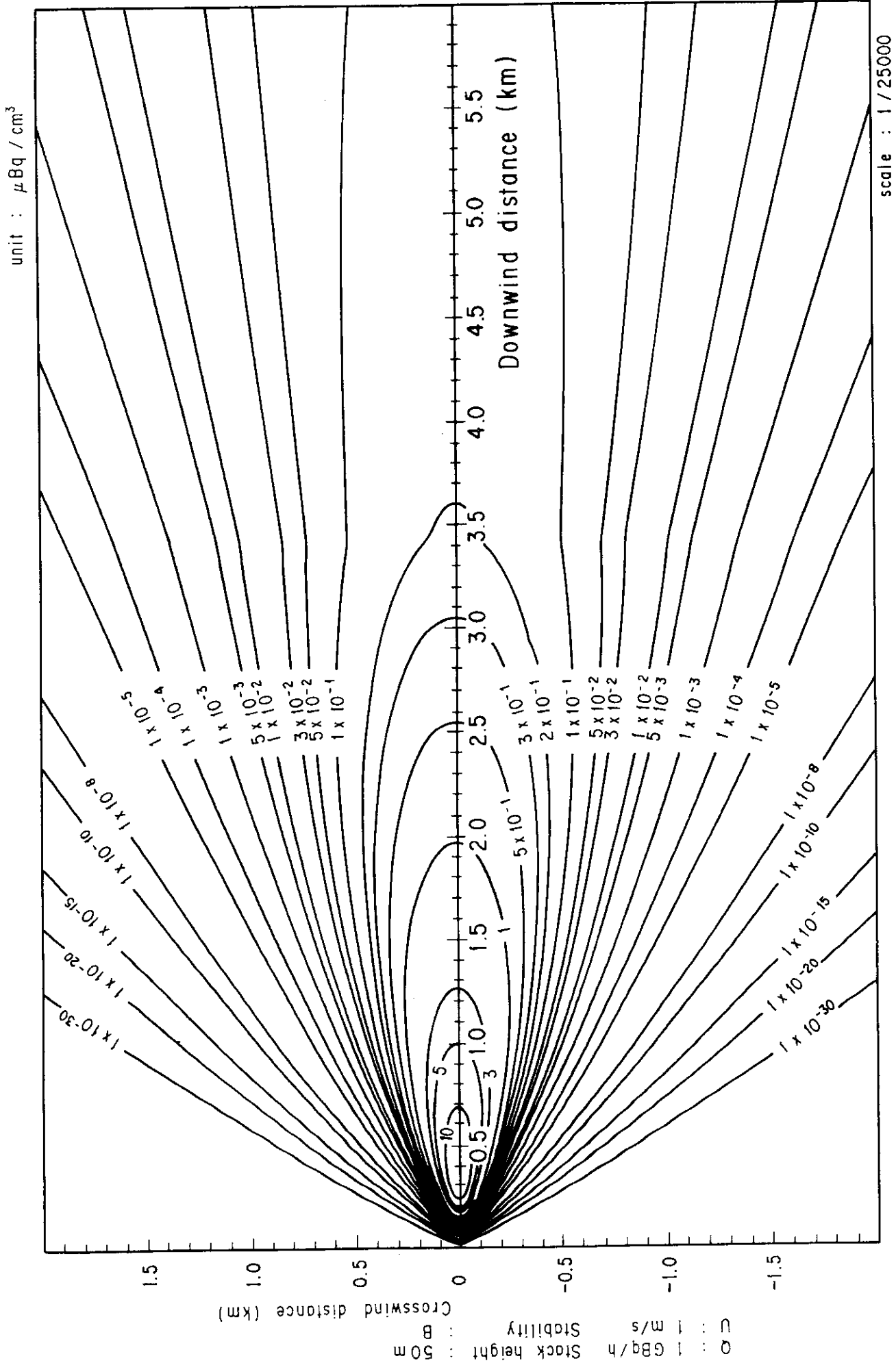


Fig. 2-6-2 (A) Isopleths of surface air concentration

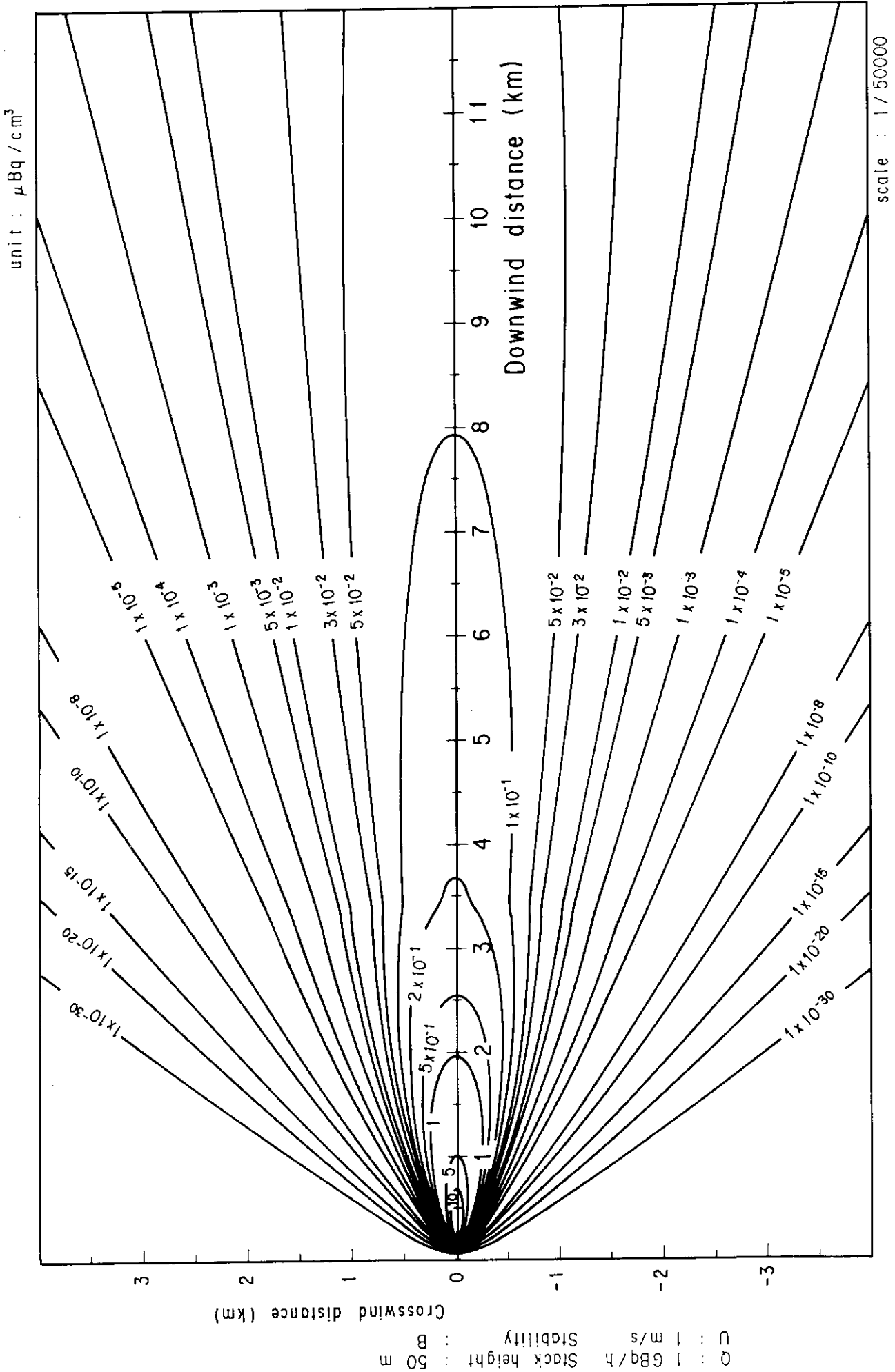


Fig. 2-6-2 (B) Isopleths of surface air concentration

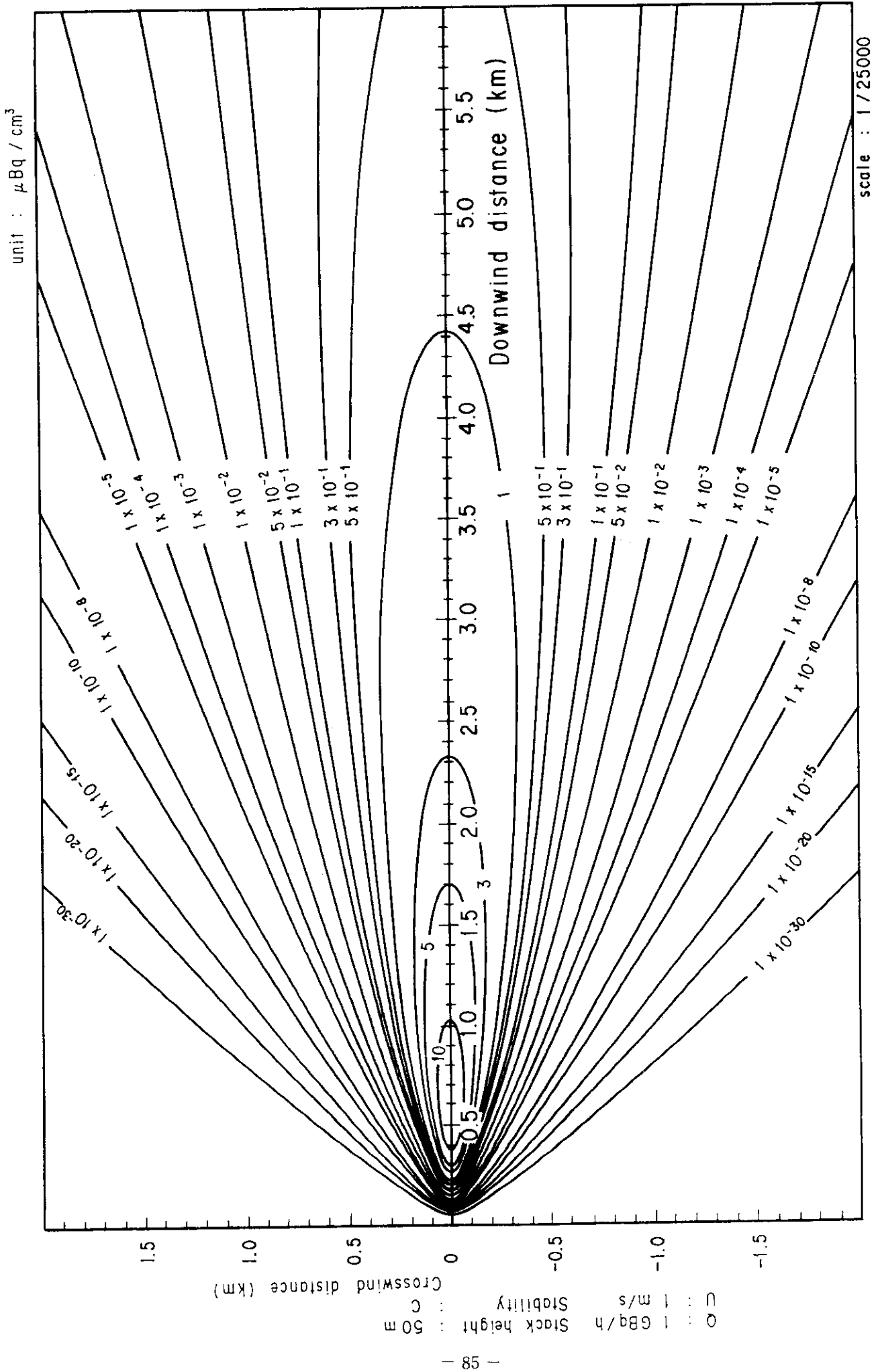


Fig. 2-6-3 (A) Isopleths of surface air concentration

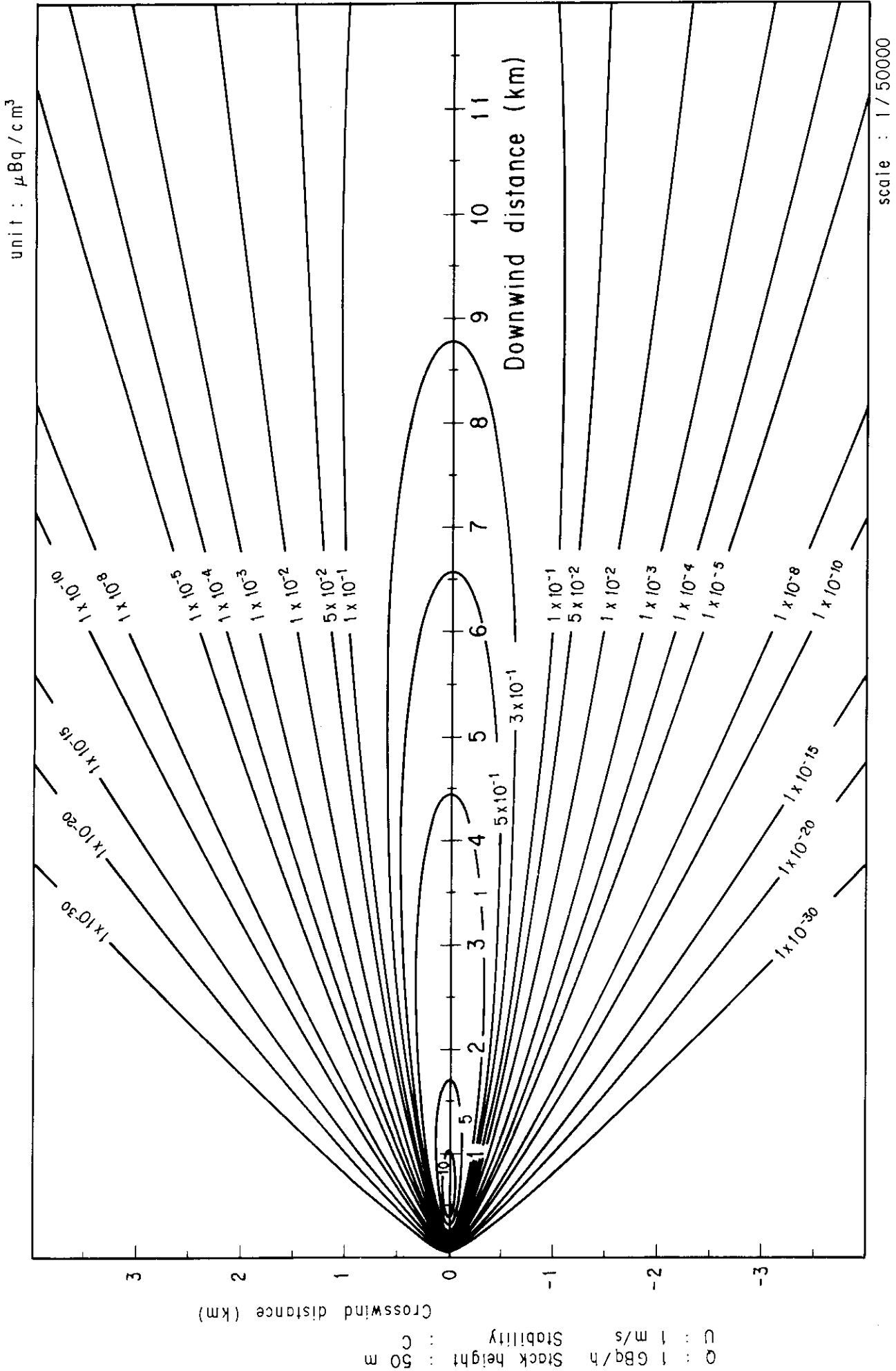


Fig. 2-6-3 (B) Isopleths of surface air concentration

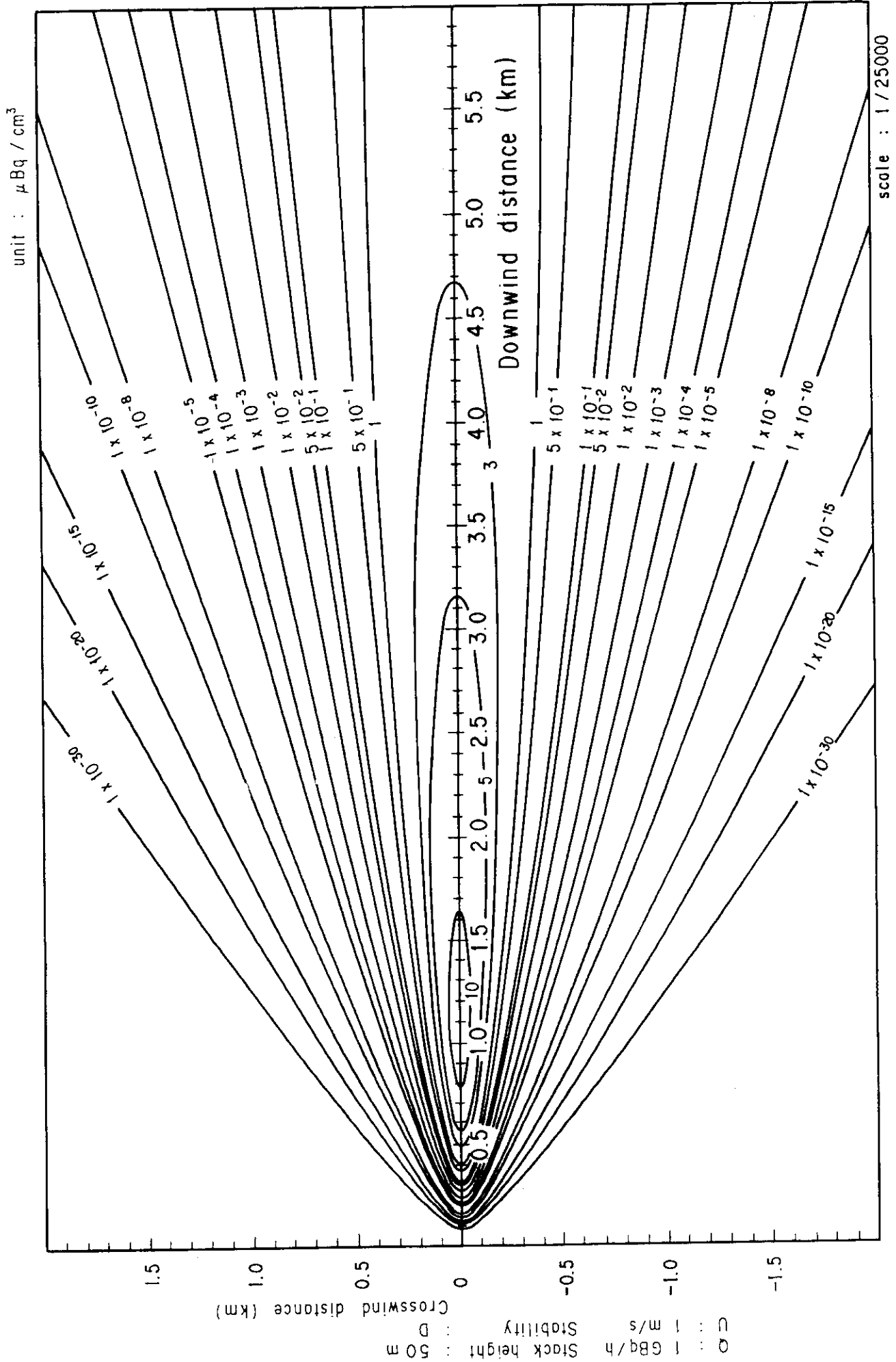


Fig.2-6-4 (A) Isopleths of surface air concentration

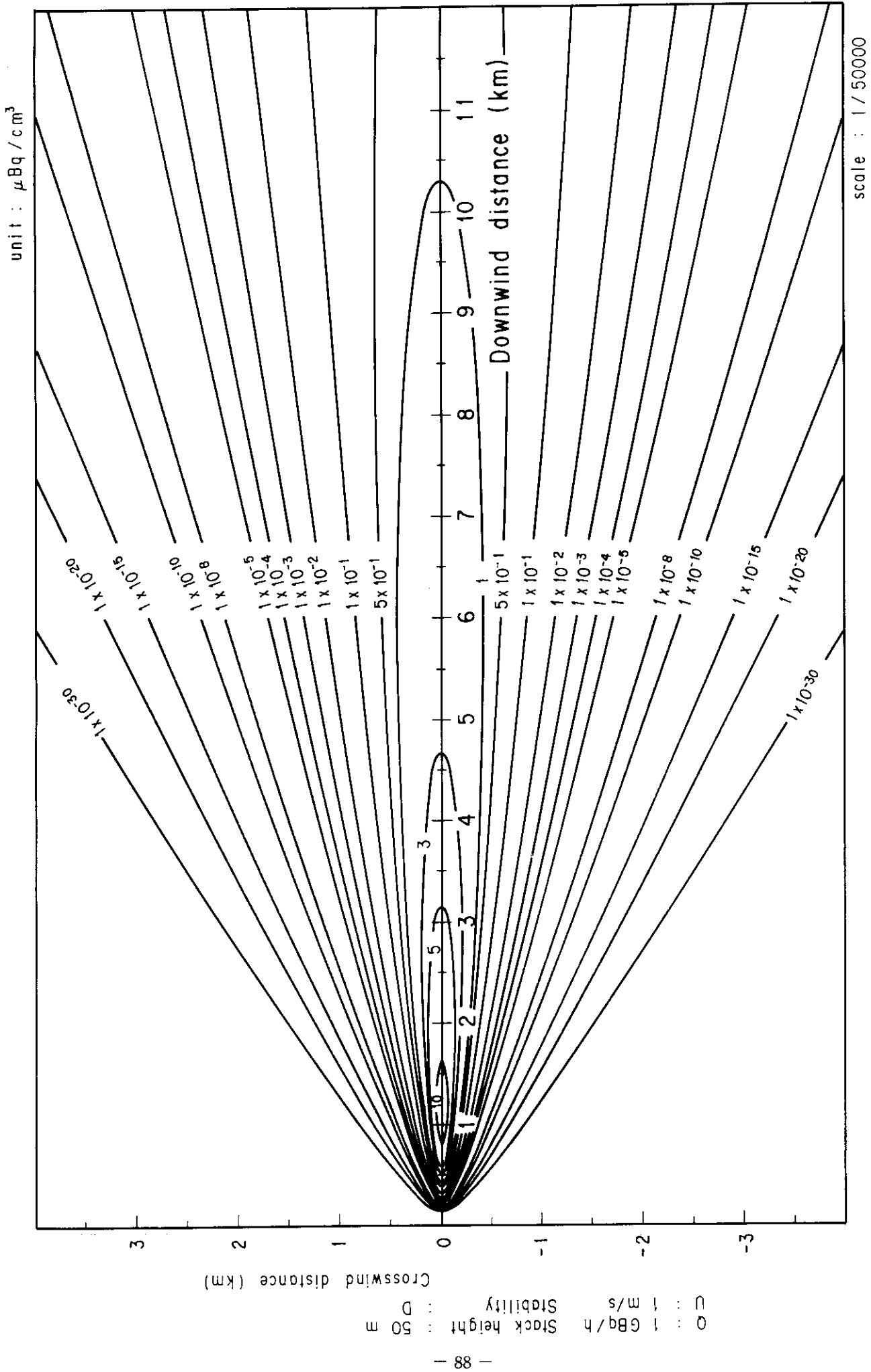


Fig. 2-6-4 (B) Isopleths of surface air concentration

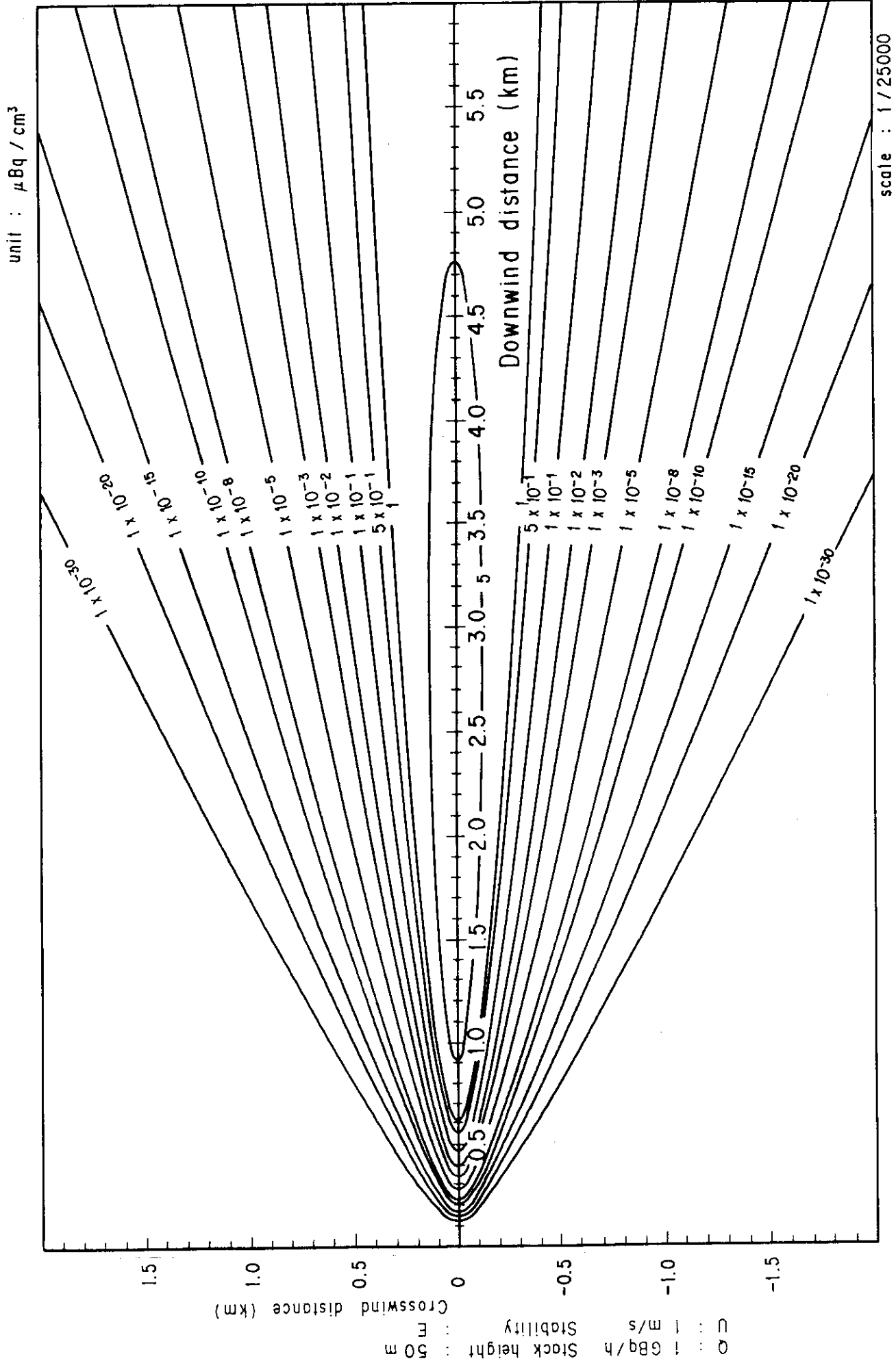


Fig. 2-6-5 (A) Isopleths of surface air concentration

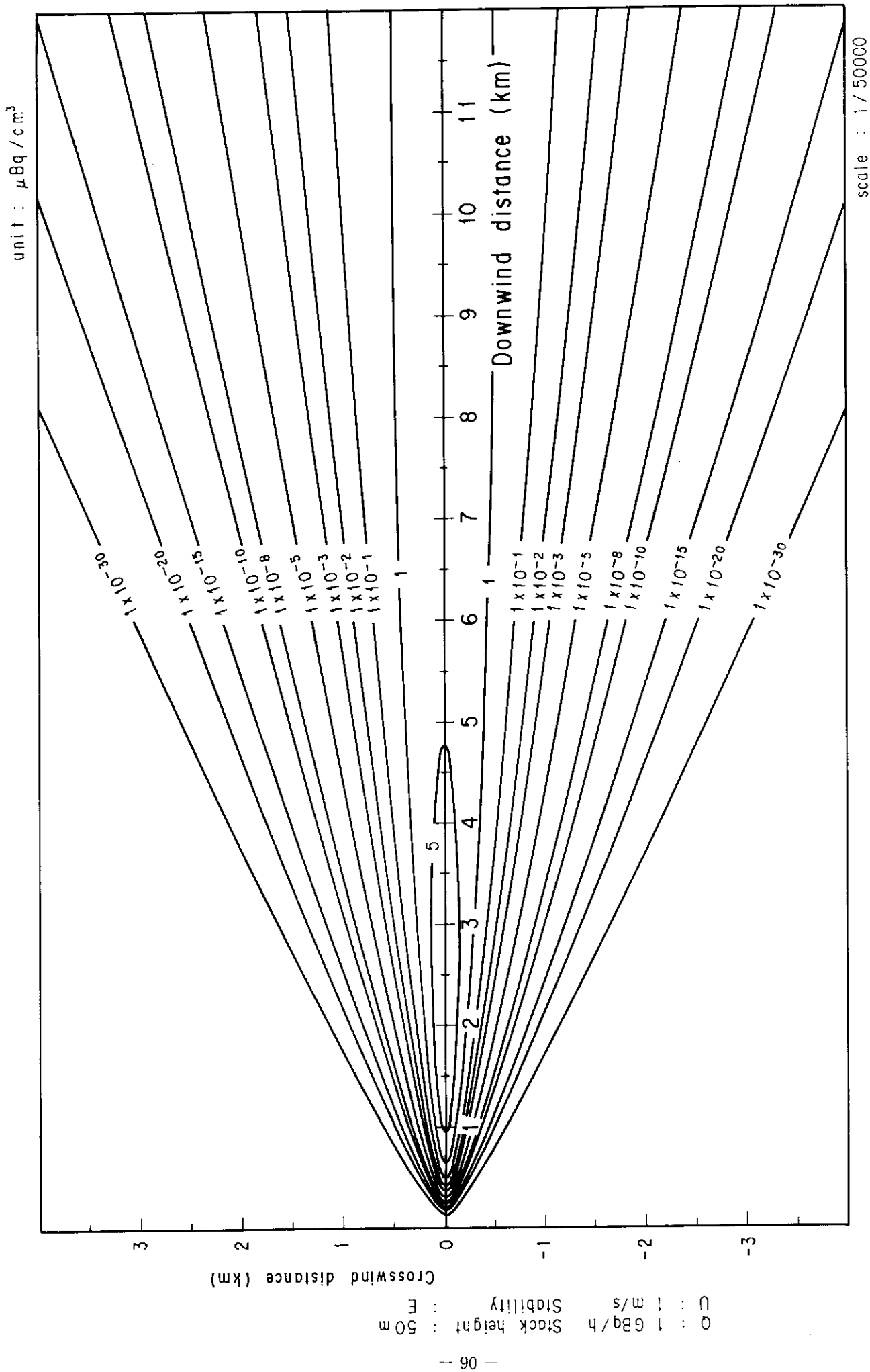


Fig. 2-6-5 (B) Isopleths of surface air concentration

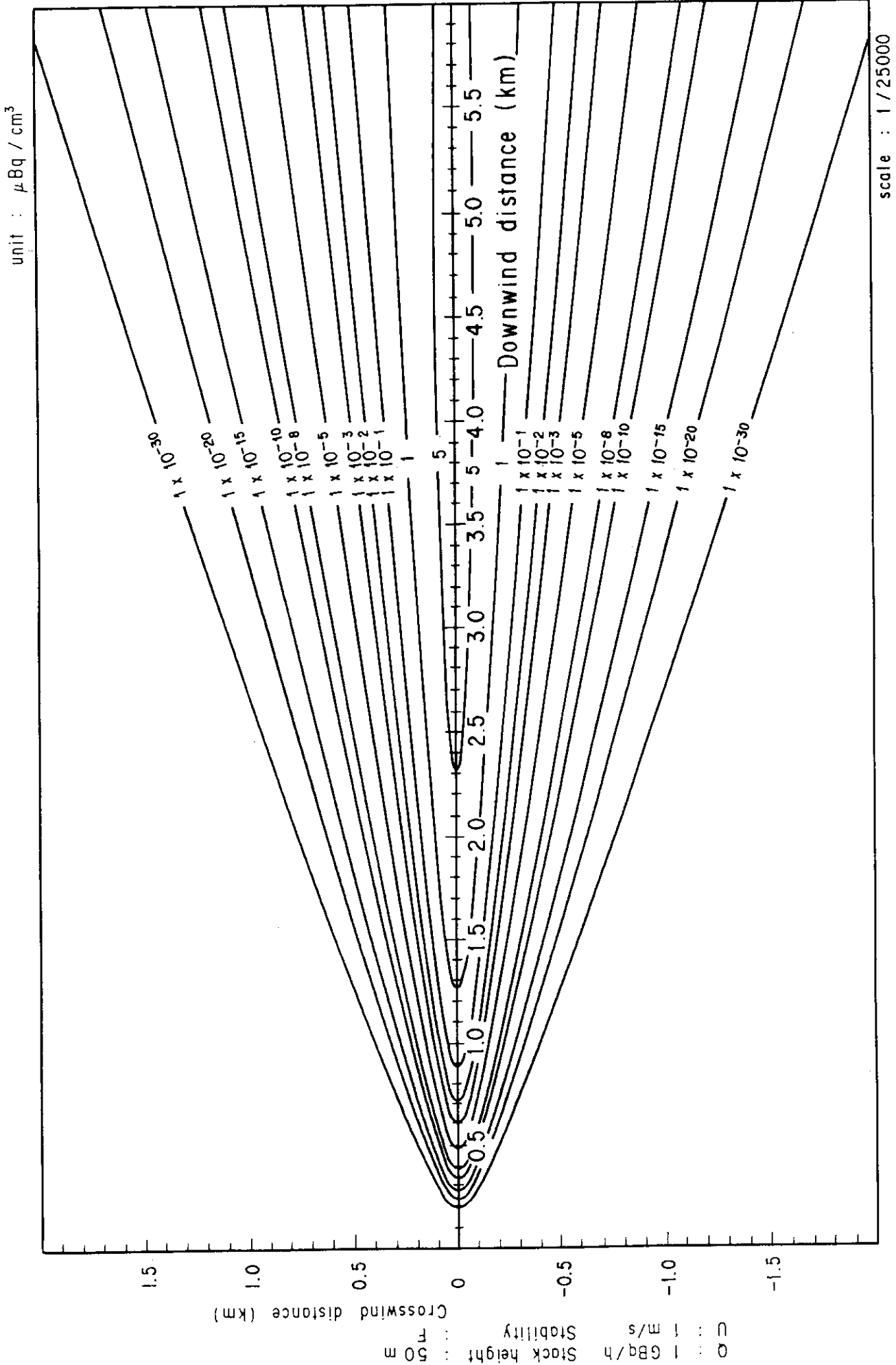


Fig. 2-6-6 (A) Isopleths of surface air concentration

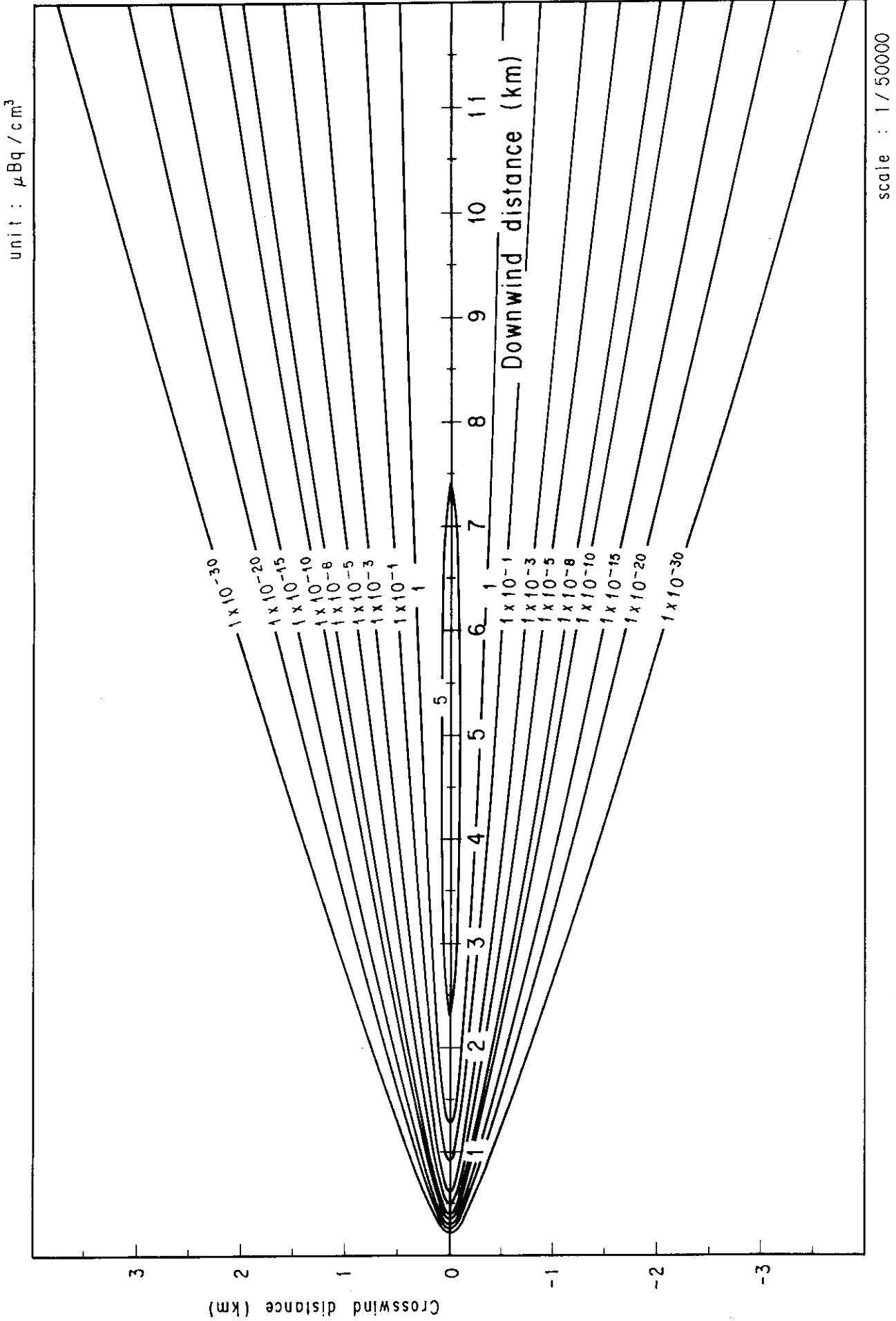


Fig. 2-6-6 (B) Isopleths of surface air concentration

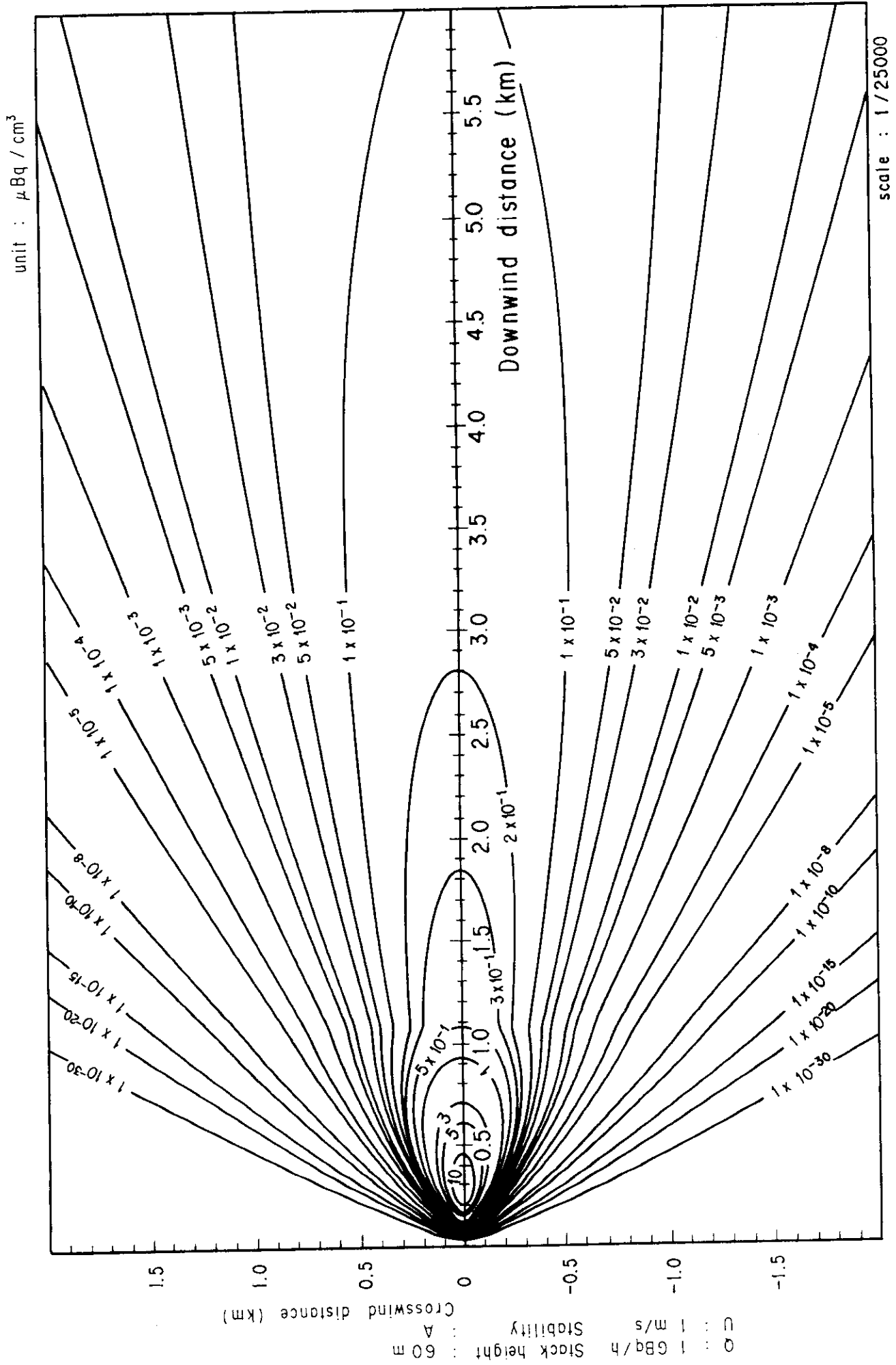


Fig. 2-7-1 (A) Isopleths of surface air concentration

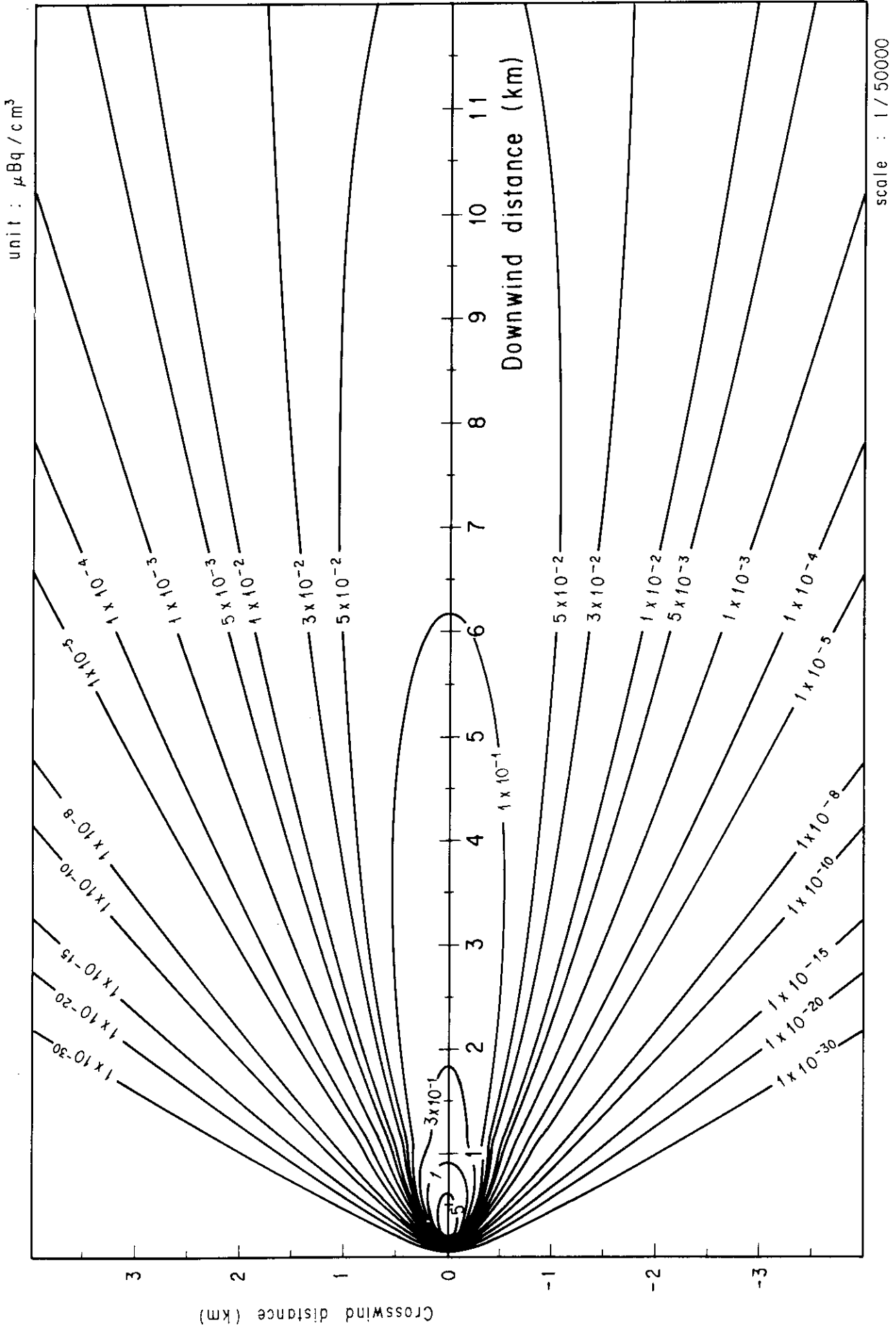


Fig. 2-7-1 (B) Isopleths of surface air concentration

Q : 1 GBq/h
 Stack height : 60 m
 U : 1 m/s
 Stability : A

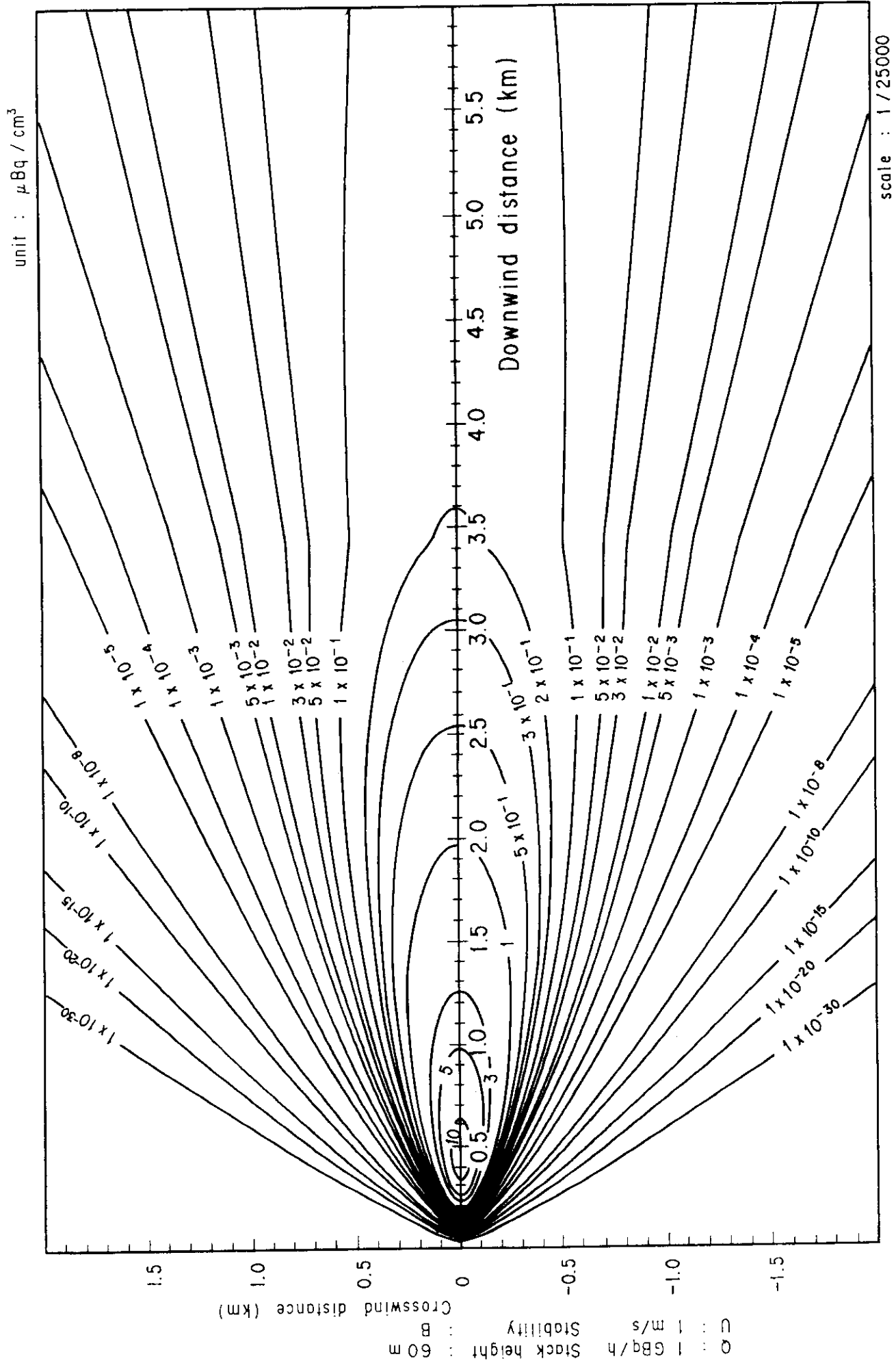


Fig. 2-7-2 (A) Isopleths of surface air concentration

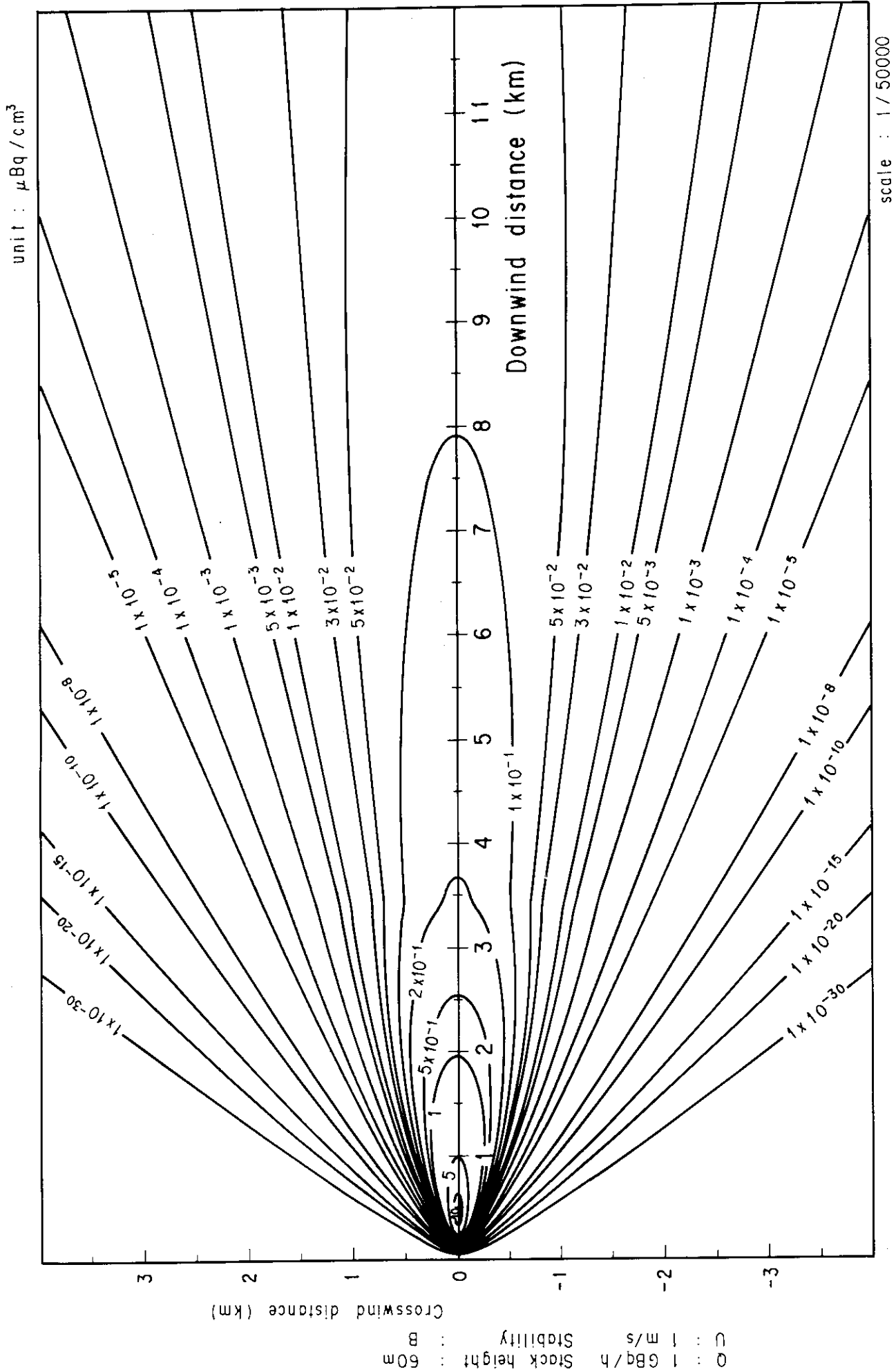


Fig. 2-7-2 (B) Isopleths of surface air concentration

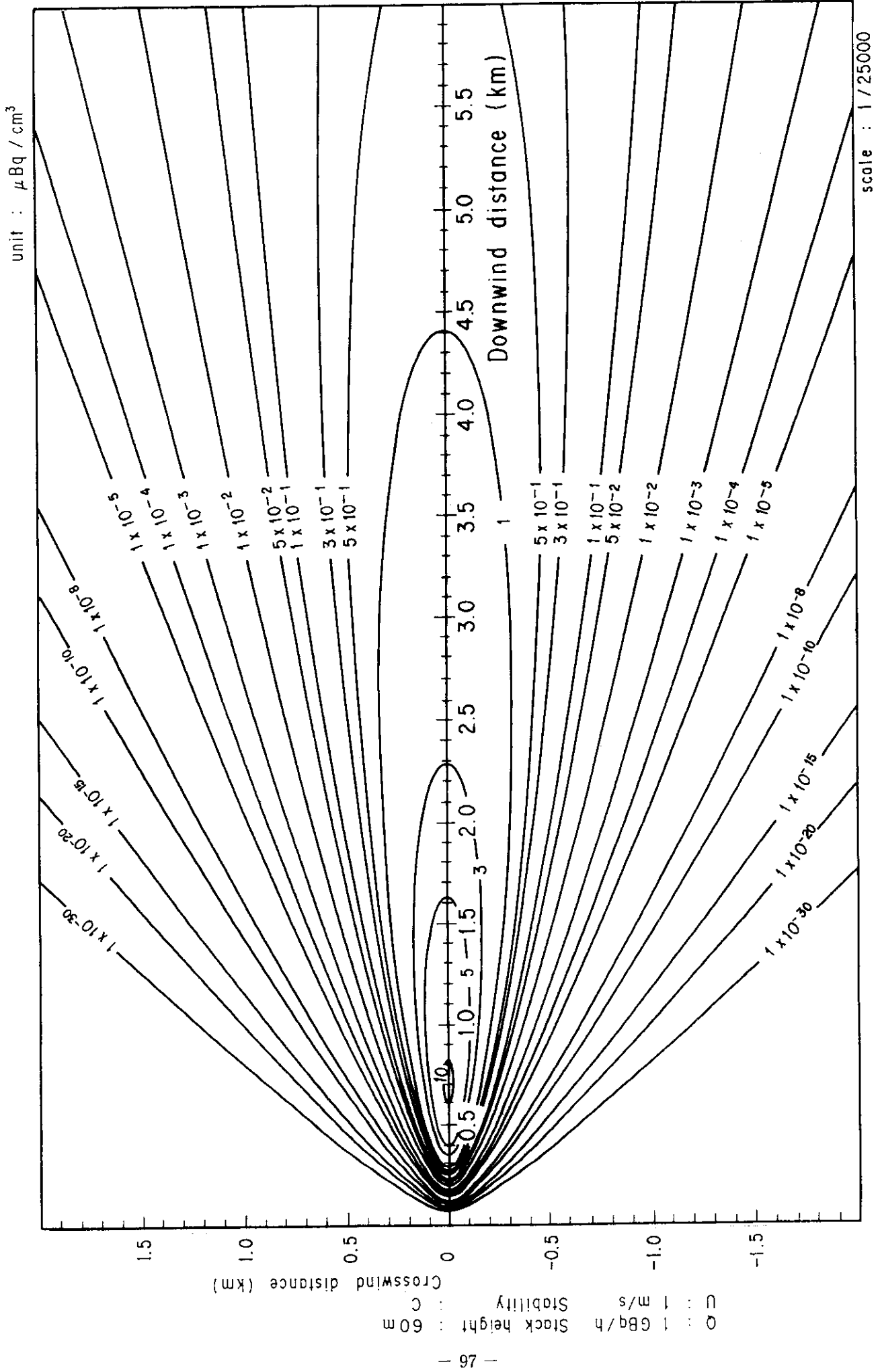


Fig. 2-7-3 (A) Isopleths of surface air concentration

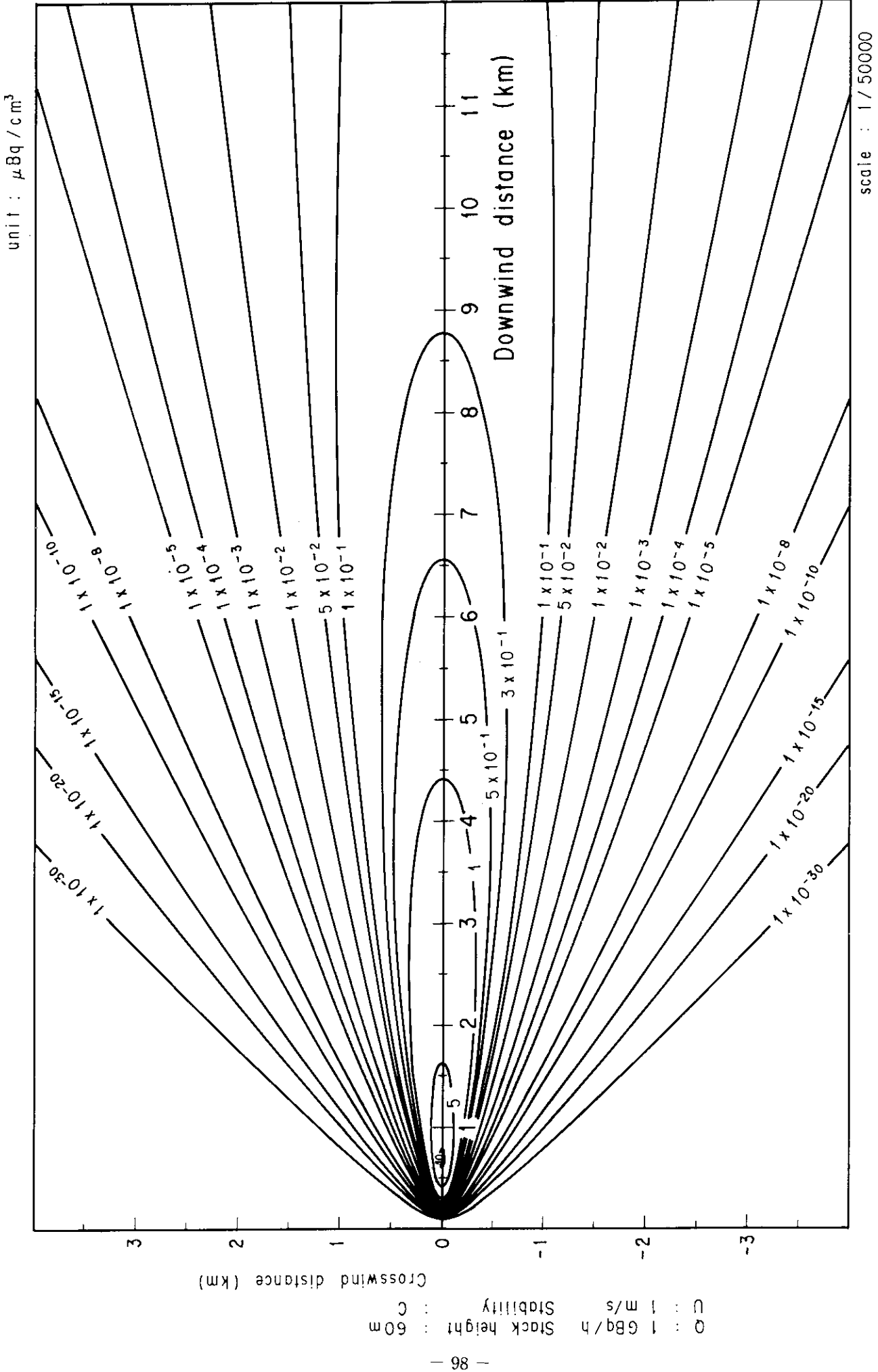


Fig. 2-7-3 (B) Isopleths of surface air concentration

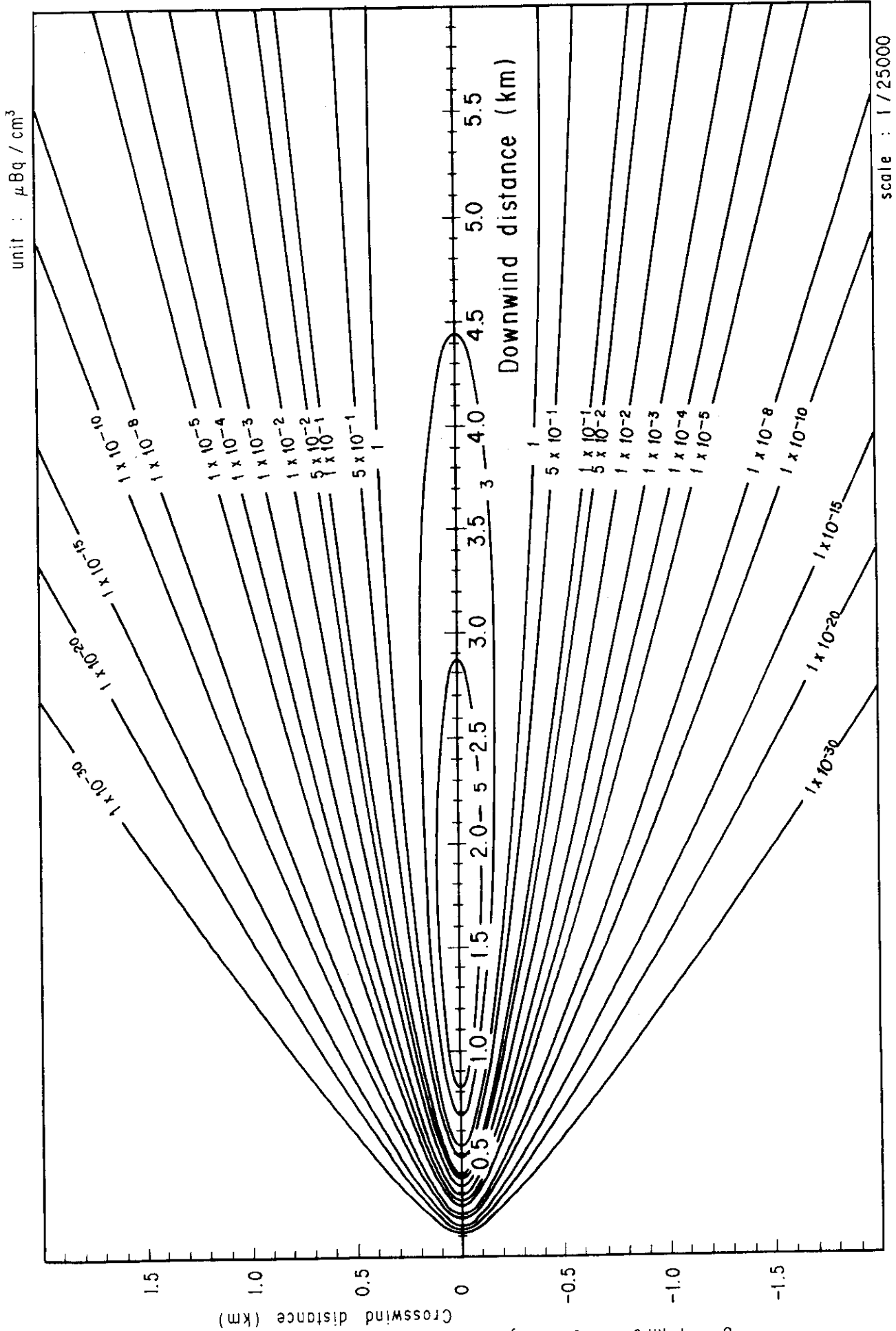


Fig. 2-7-4 (A) Isopleths of surface air concentration

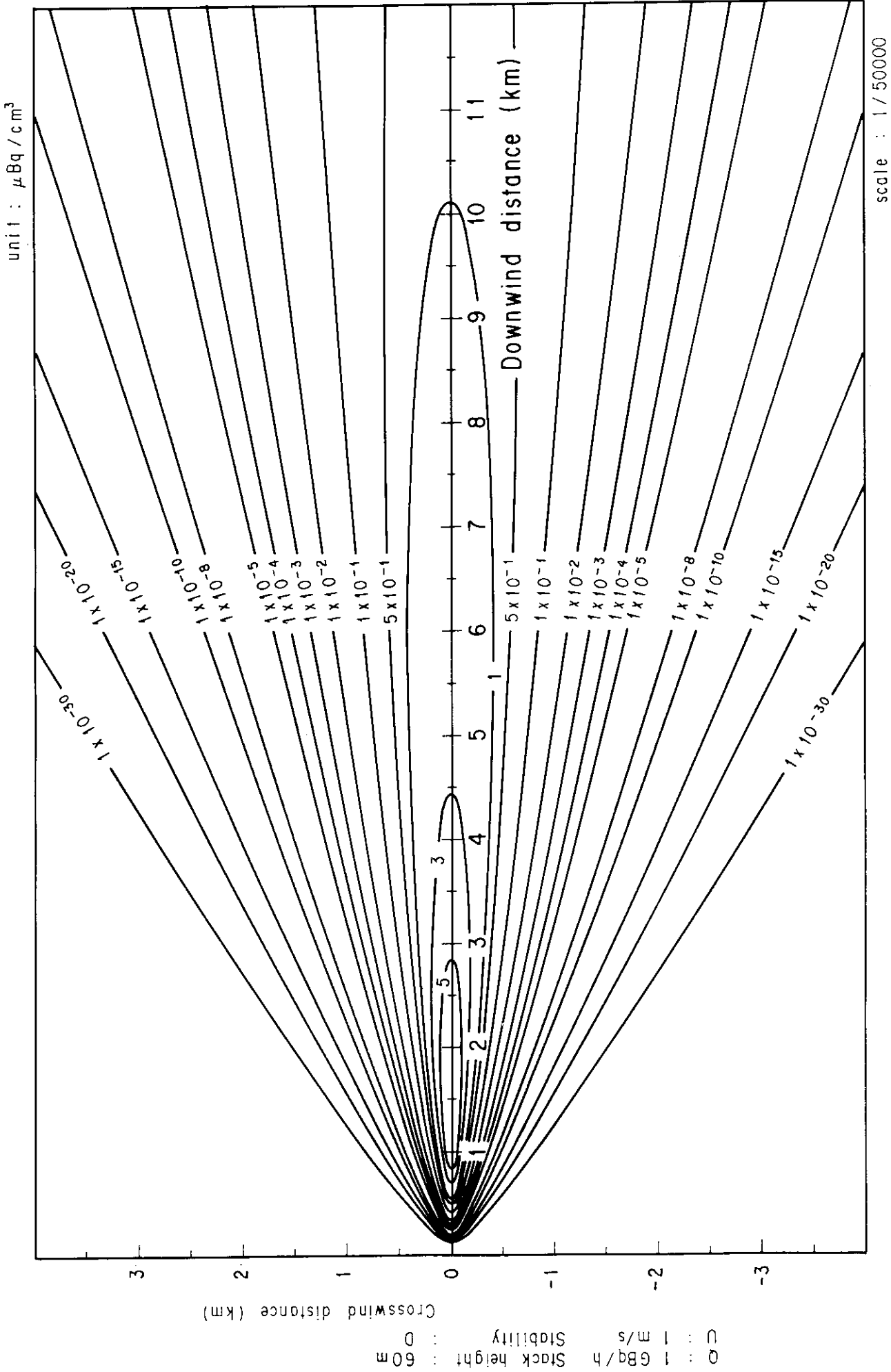


Fig. 2-7-4 (B) Isopleths of surface air concentration

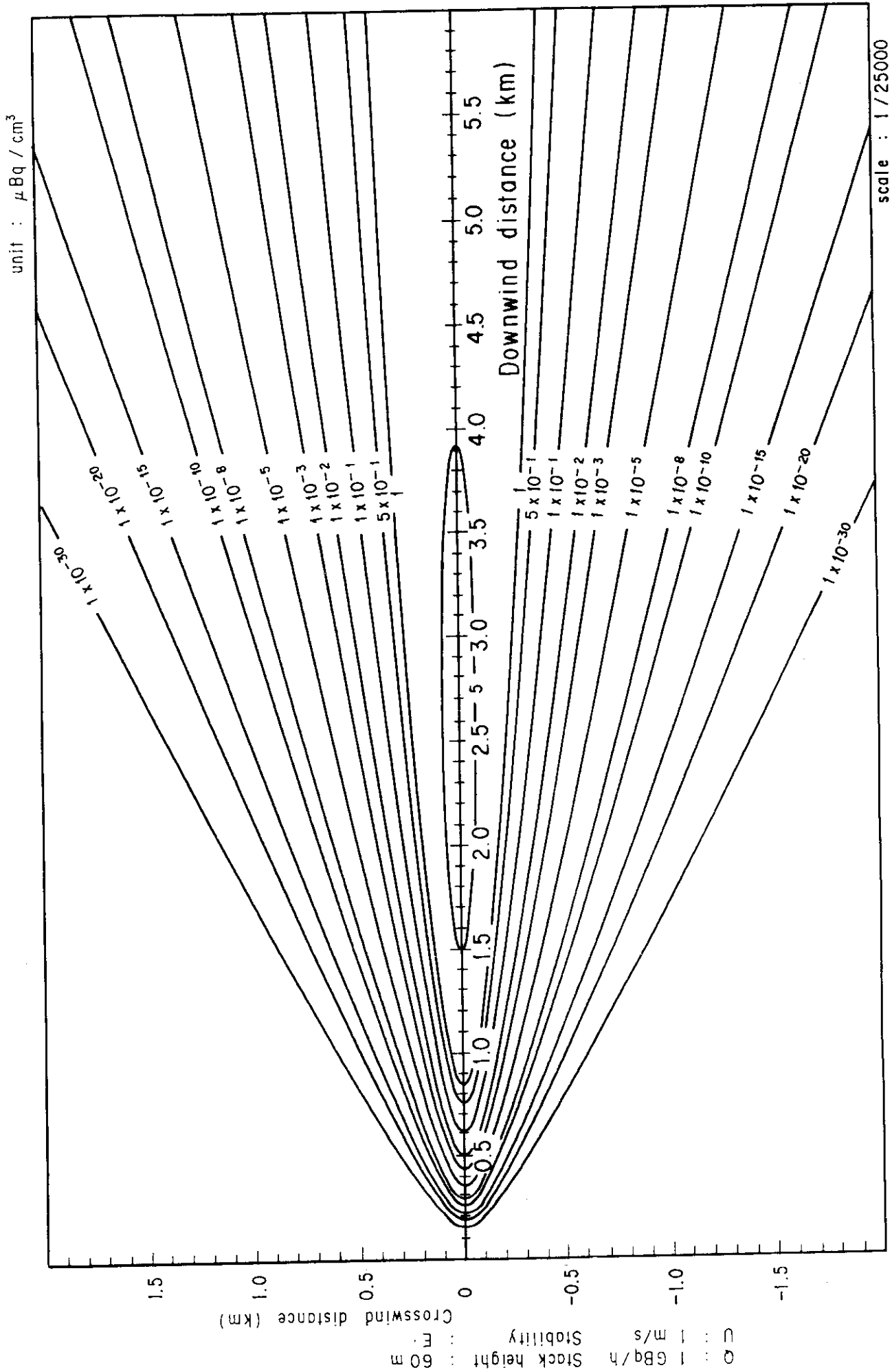


Fig. 2-7-5 (A) Isopleths of surface air concentration

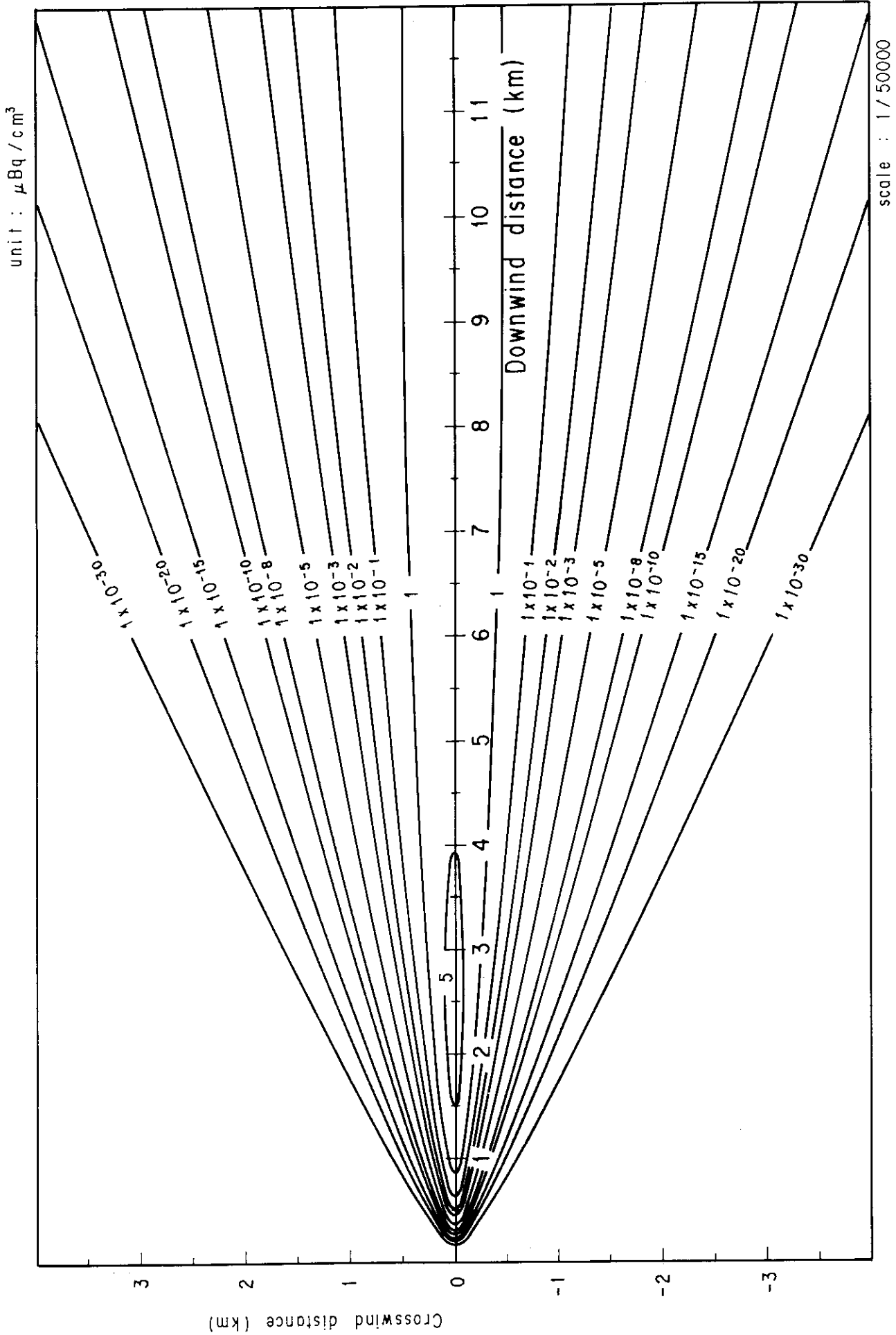


Fig. 2-7-5 (B) Isopleths of surface air concentration

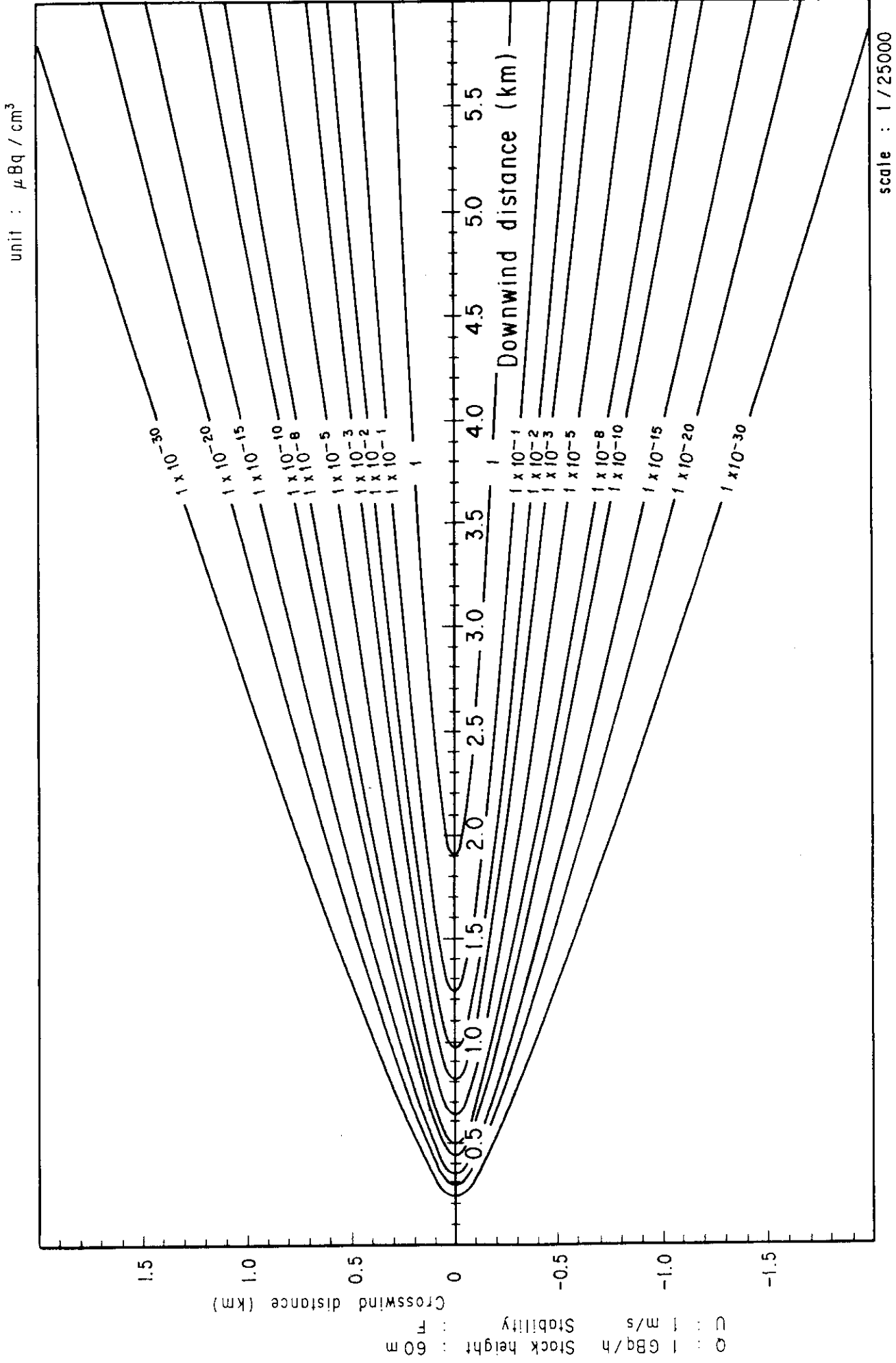
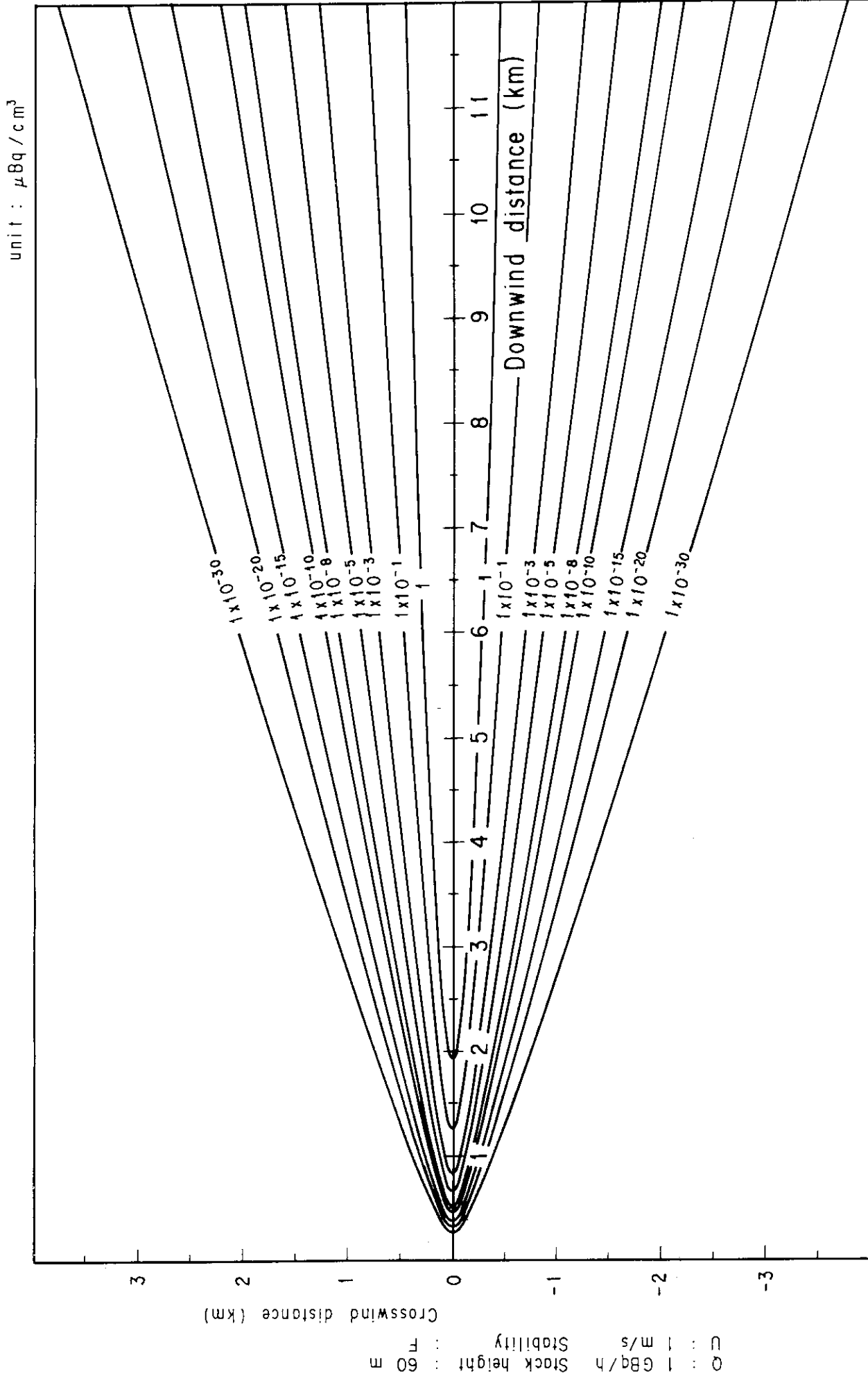


Fig. 2-7-6 (A) Isopleths of surface air concentration



scale : 1 / 50000

Fig. 2-7-6 (B) Isopleths of surface air concentration

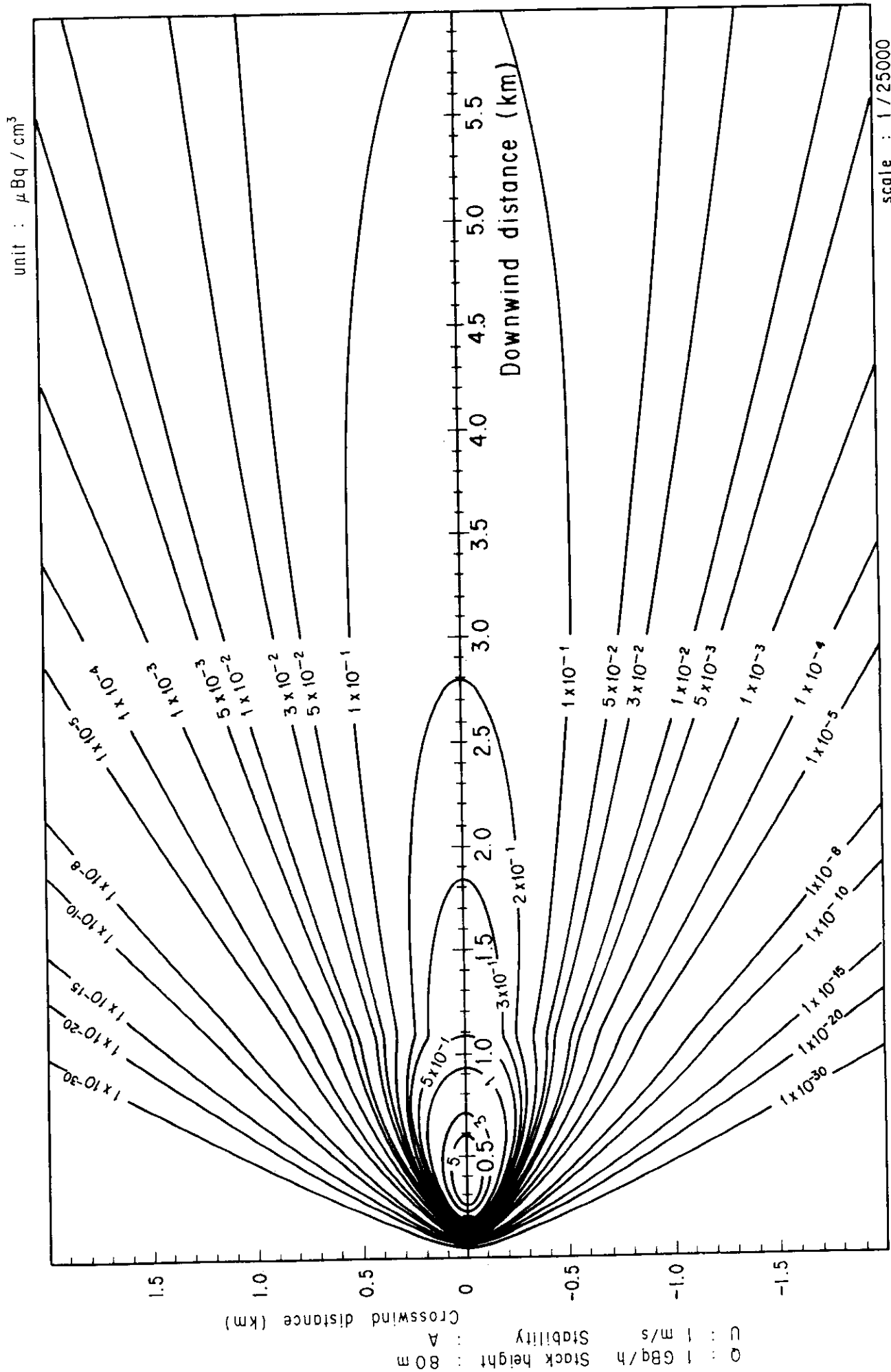


Fig. 2-8-1 (A) Isopleths of surface air concentration

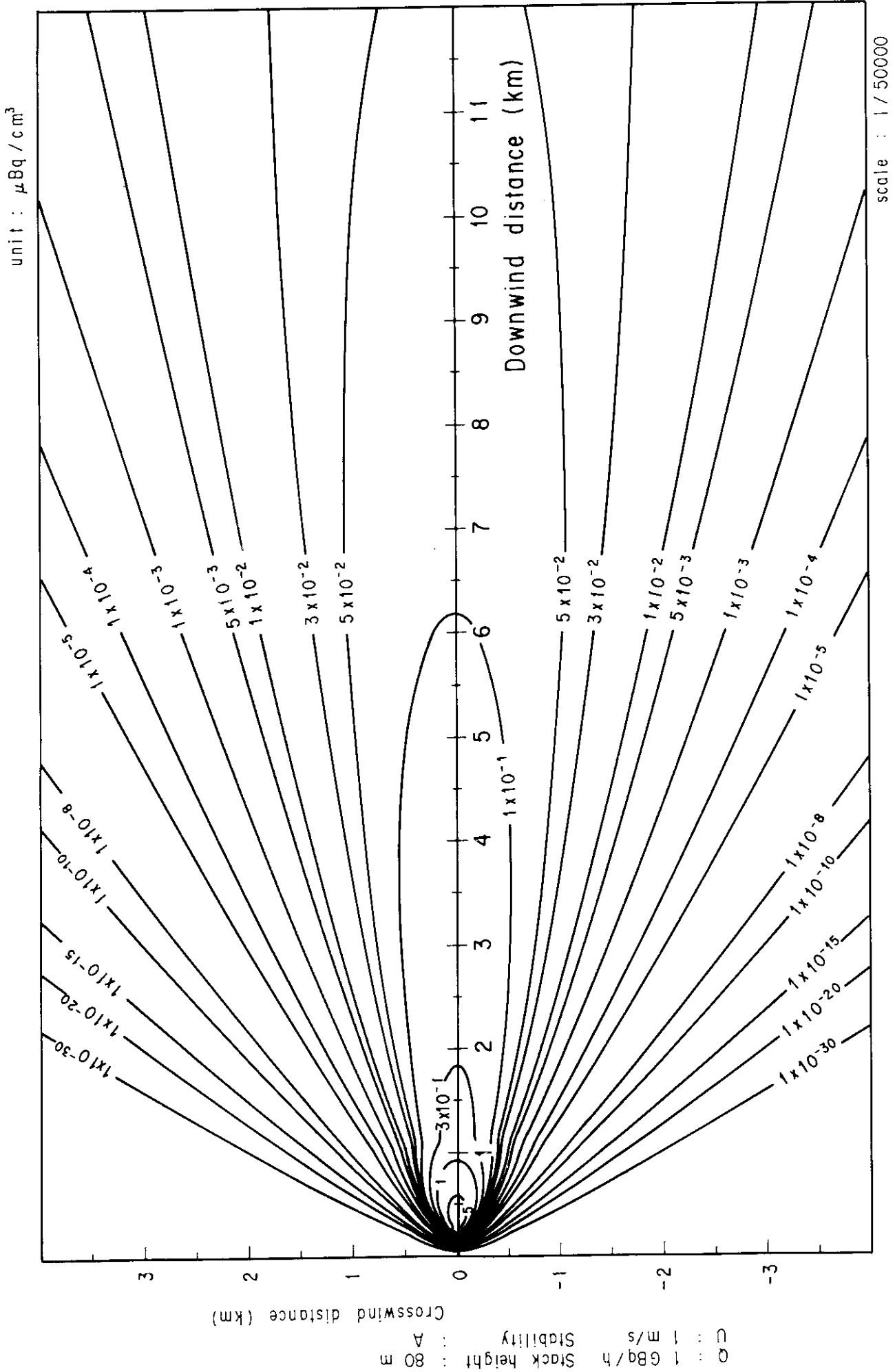


Fig.2-8-1 (B) Isopleths of surface air concentration

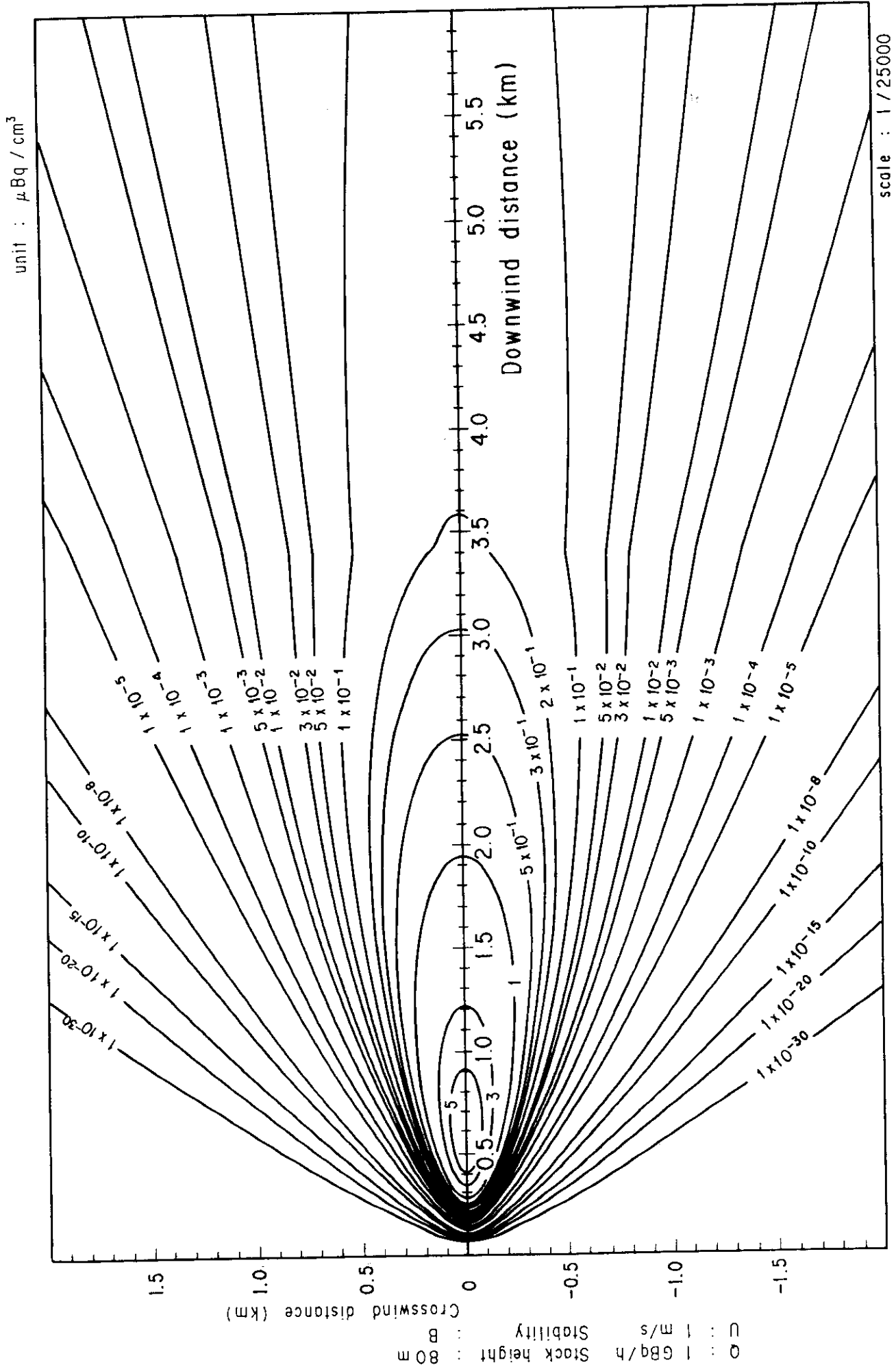


Fig. 2-8-2 (A) Isopleths of surface air concentration

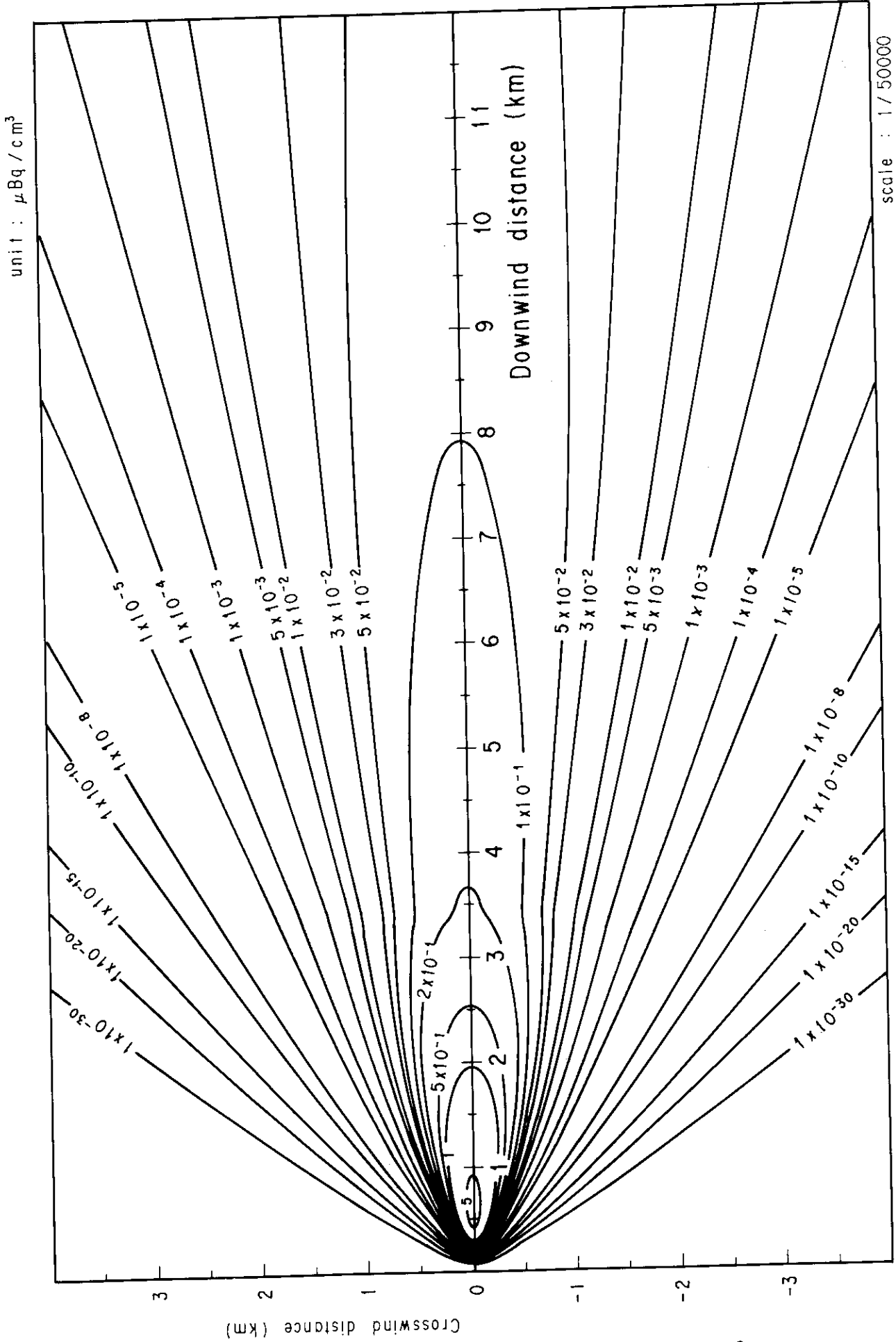


Fig. 2-8-2 (B) Isopleths of surface air concentration

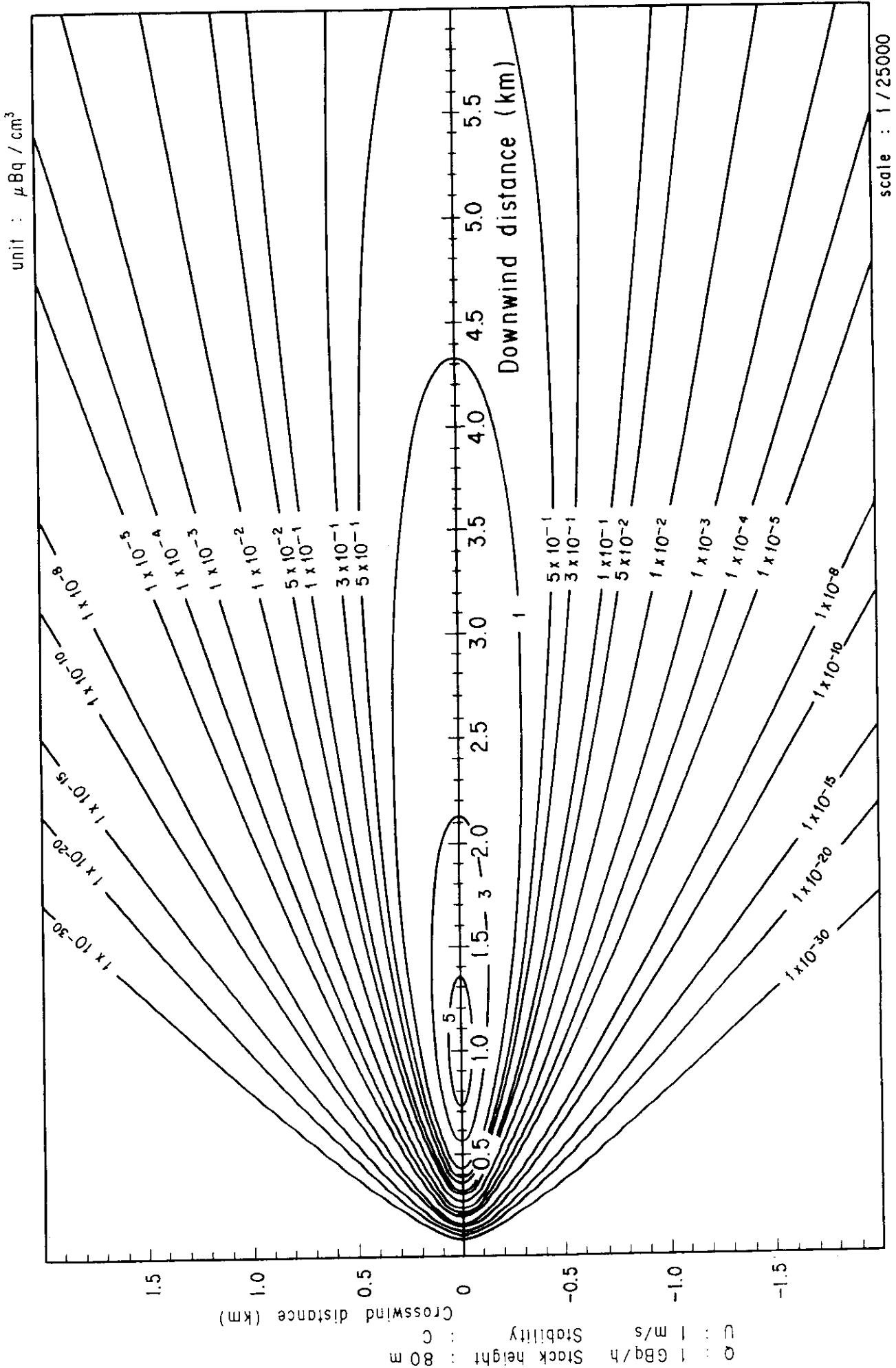


Fig. 2-8-3 (A) Isopleths of surface air concentration

Q : 1 Gbq/h
 Stack height : 80 m
 Stability : C
 U : 1 m/s

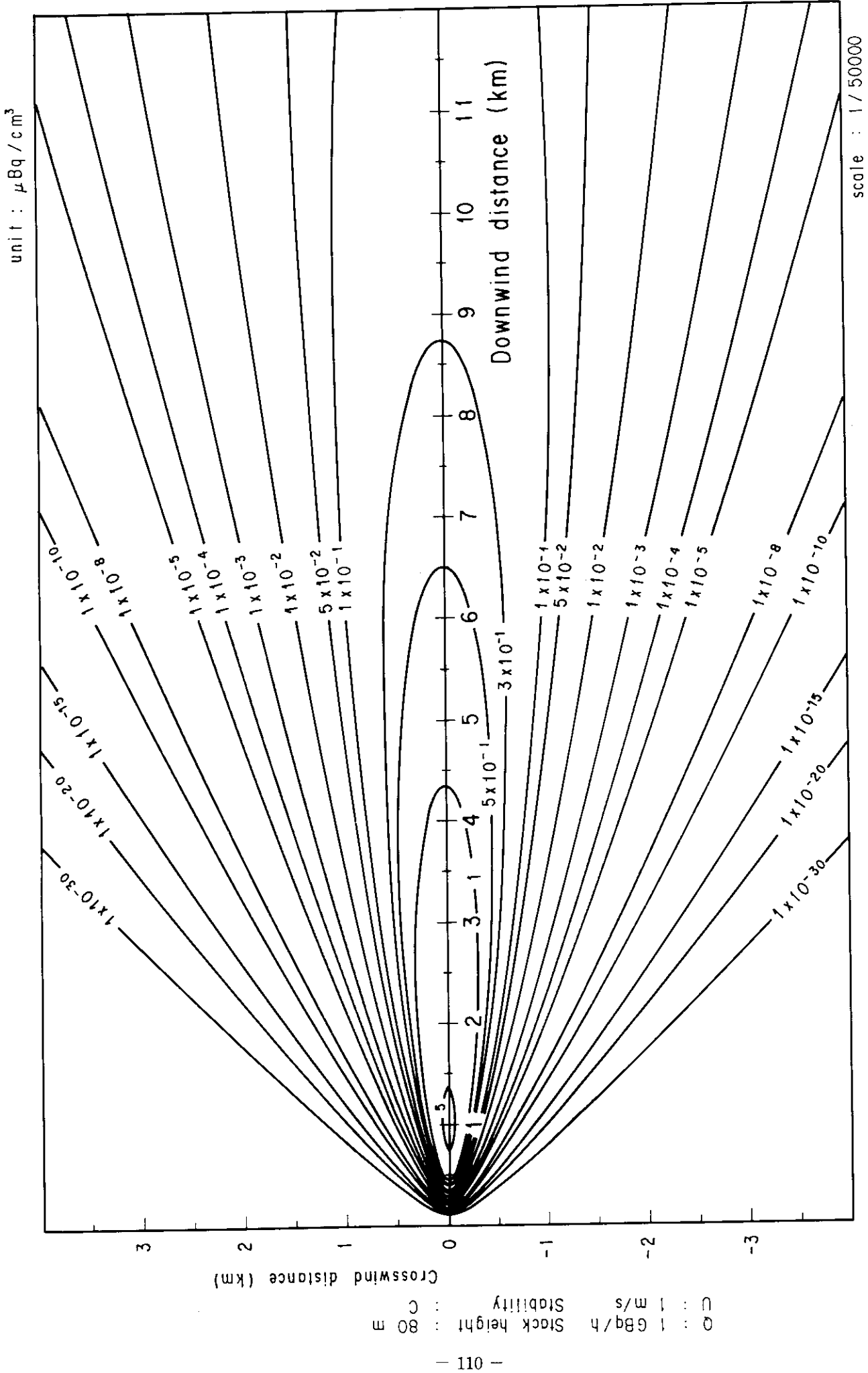
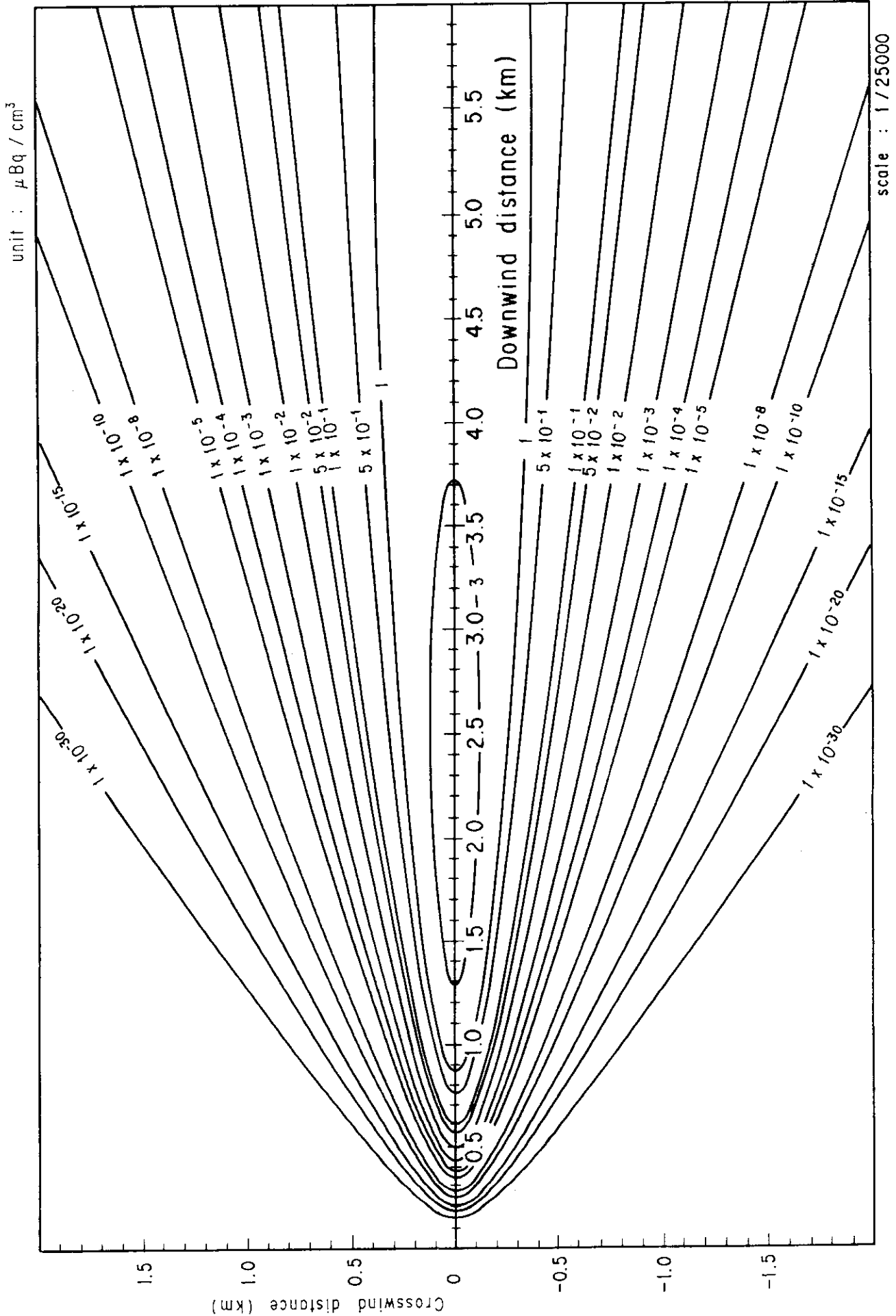


Fig. 2-8-3 (B) Isopleths of surface air concentration



Q : 1 GBq/h
 Stack height : 80 m
 Stability : D
 U : 1 m/s

Fig. 2-8-4 (A) Isopleths of surface air concentration

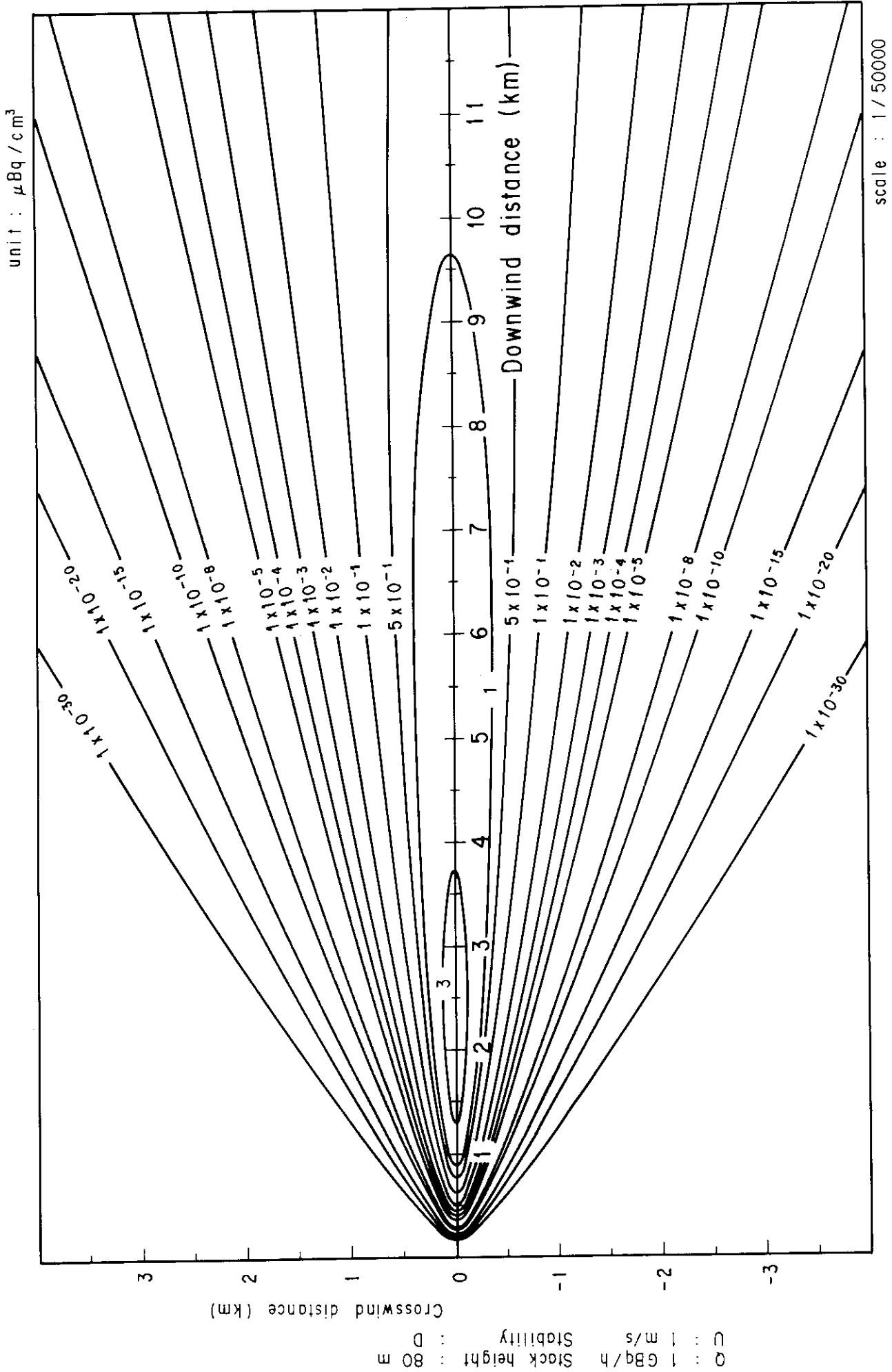


Fig. 2-8-4 (B) Isopleths of surface air concentration

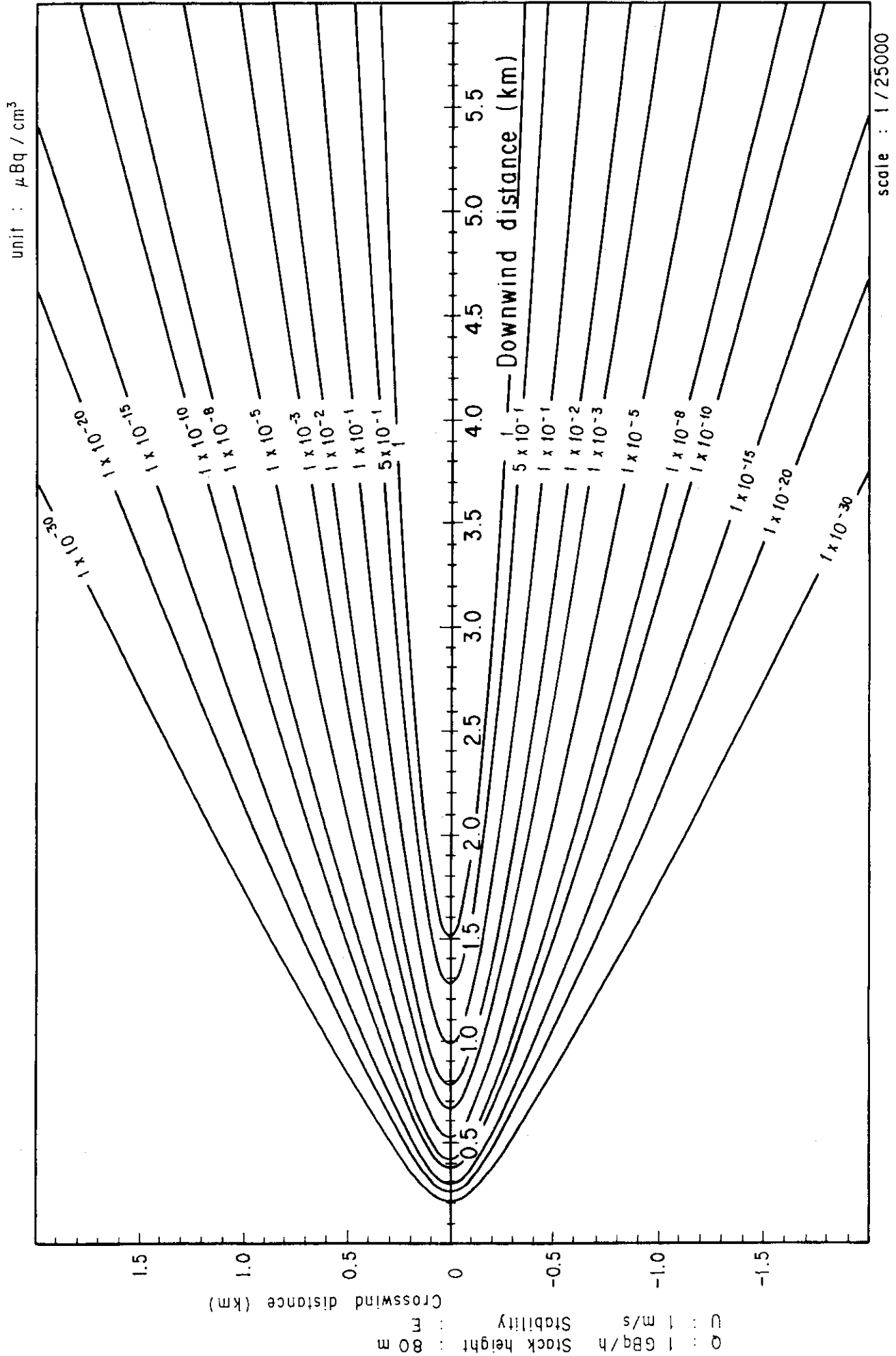


Fig. 2-8-5 (A) Isopleths of surface air concentration

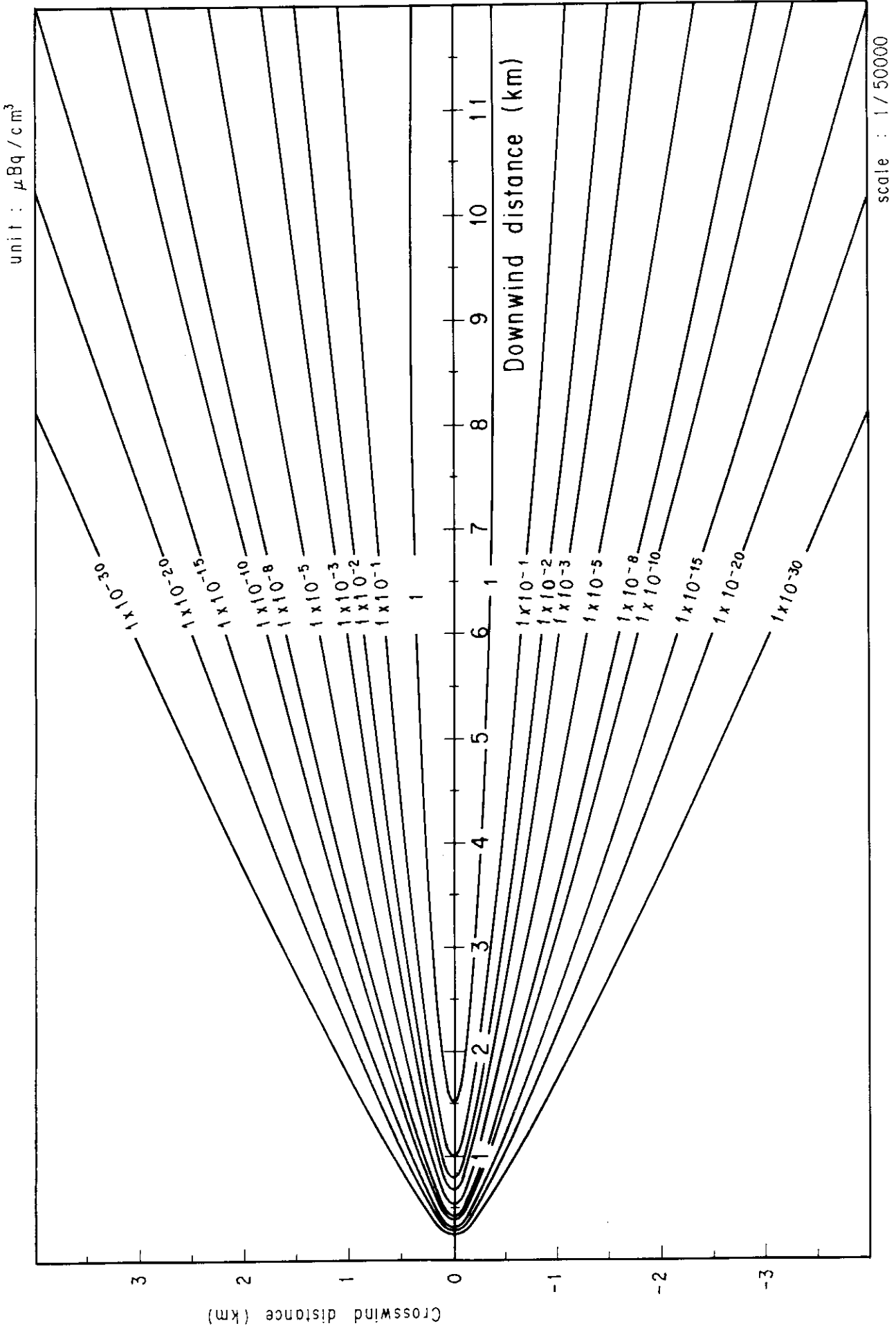


Fig. 2-8-5 (B) Isopleths of surface air concentration

Q : 1 GBq/h
Stack height : 80 m
U : 1 m/s
Stability : F

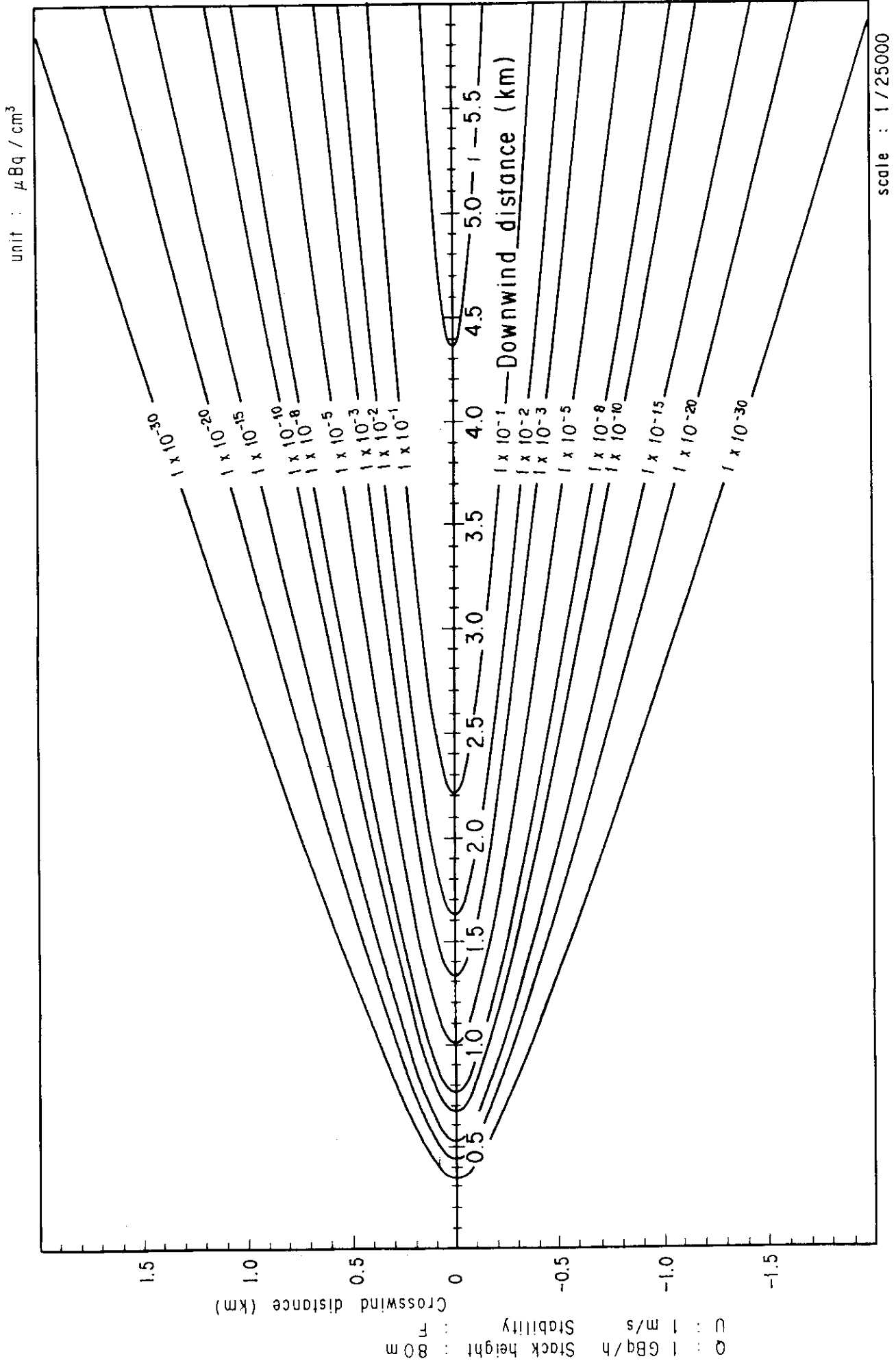


Fig. 2-8-6 (A) Isopleths of surface air concentration

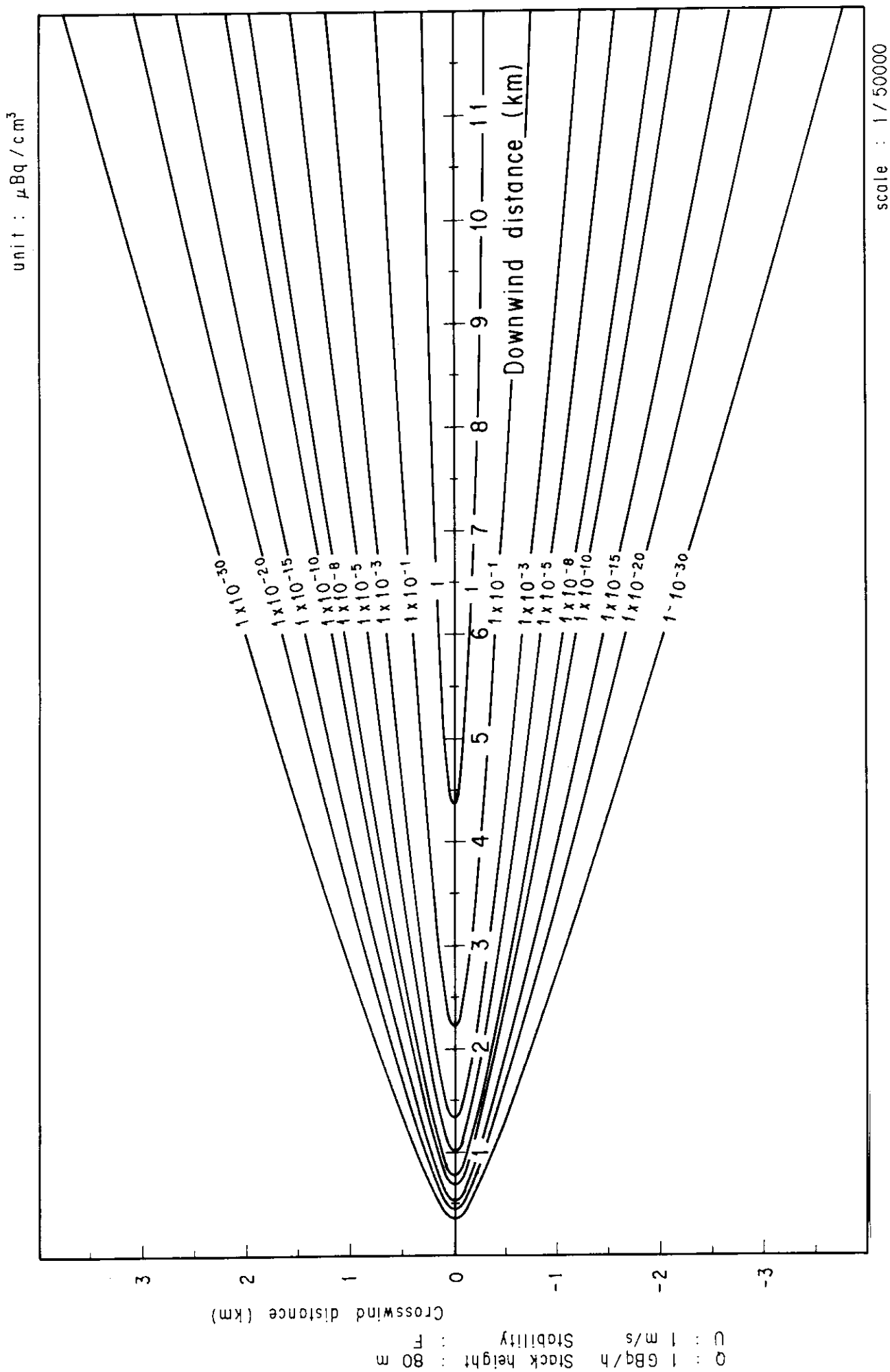


Fig. 2-8-6 (B) Isopleths of surface air concentration

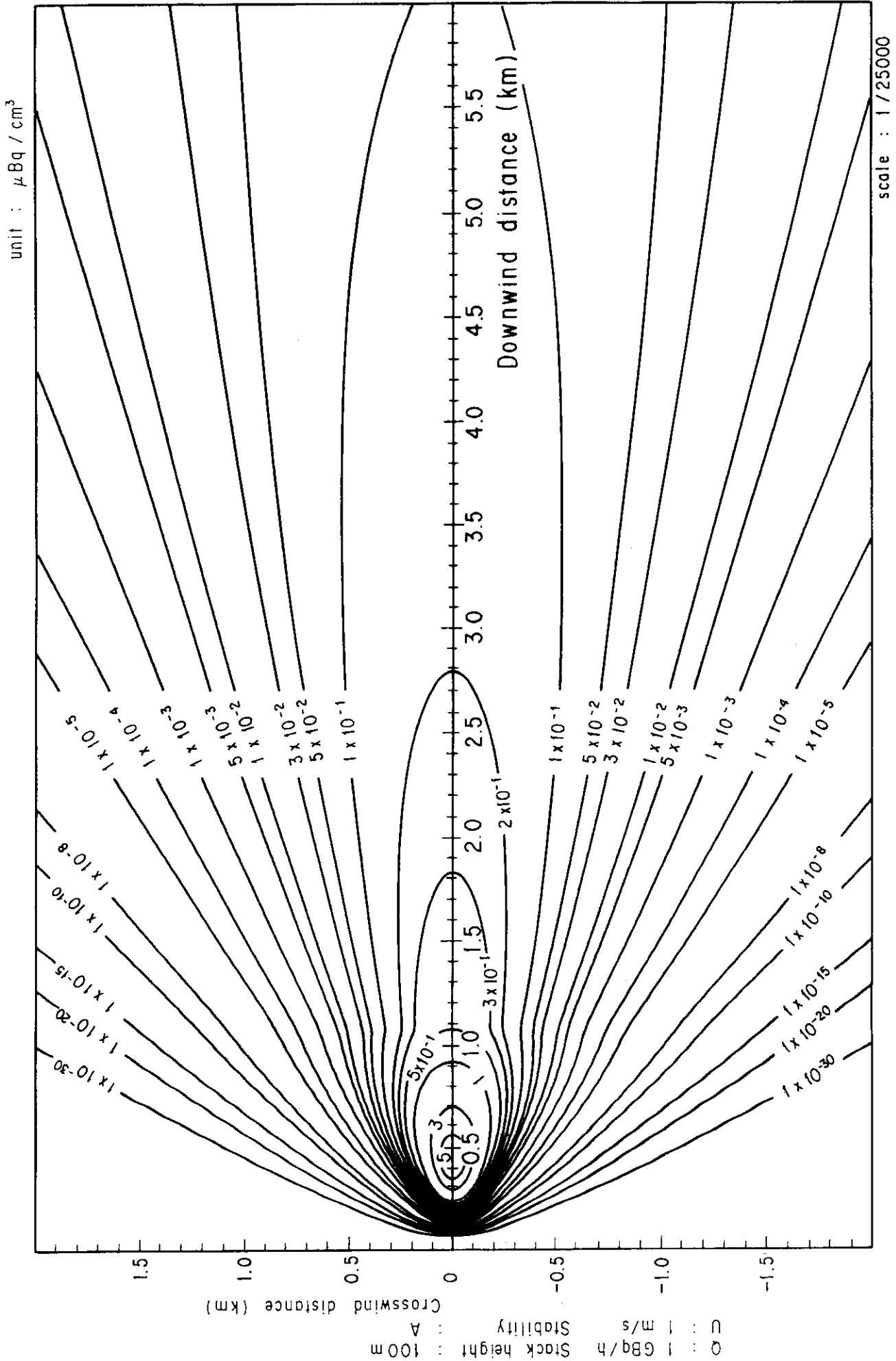


Fig. 2-9-1 (A) Isopleths of surface air concentration

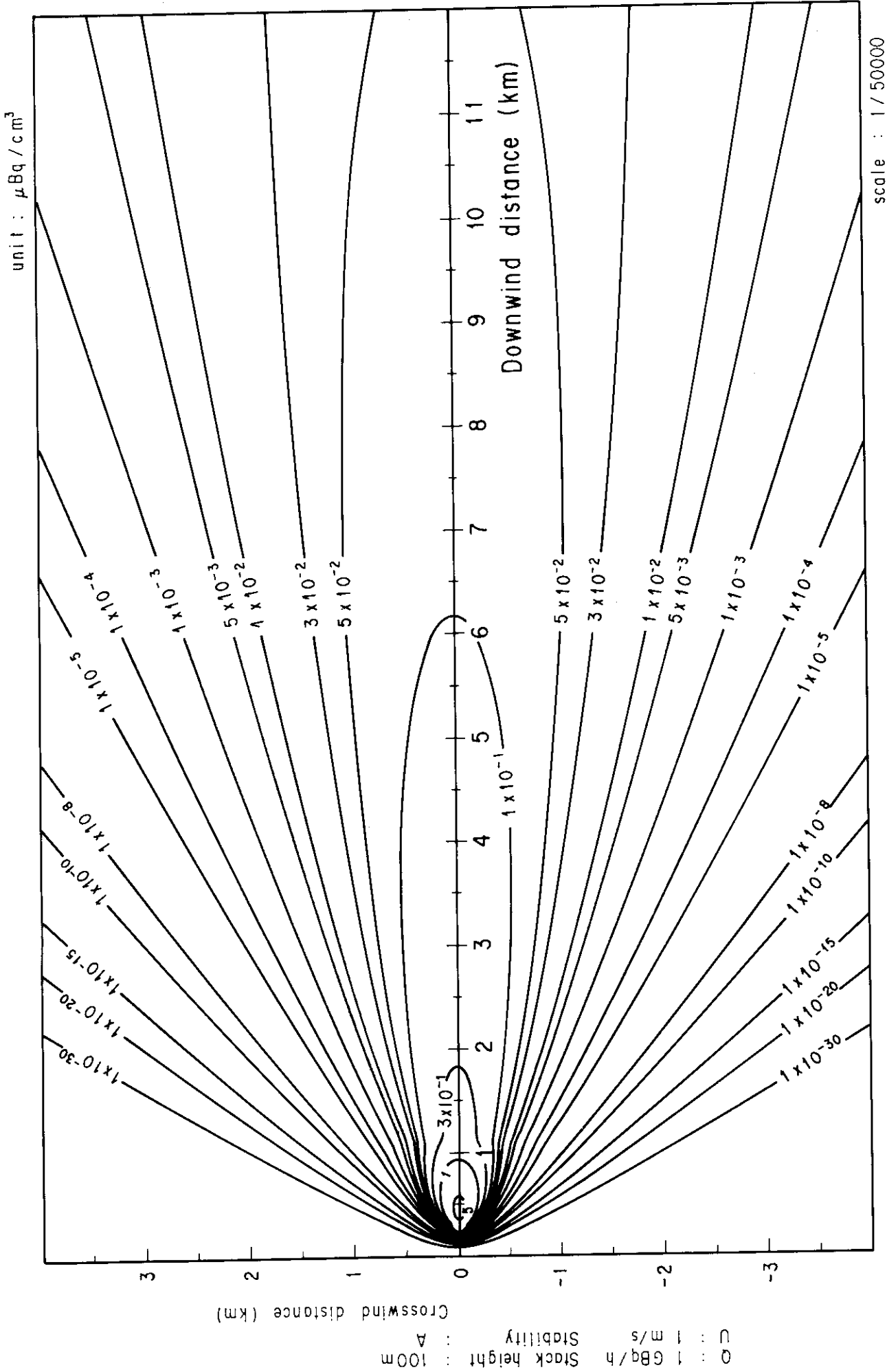


Fig.2-9-1 (B) Isopleths of surface air concentration

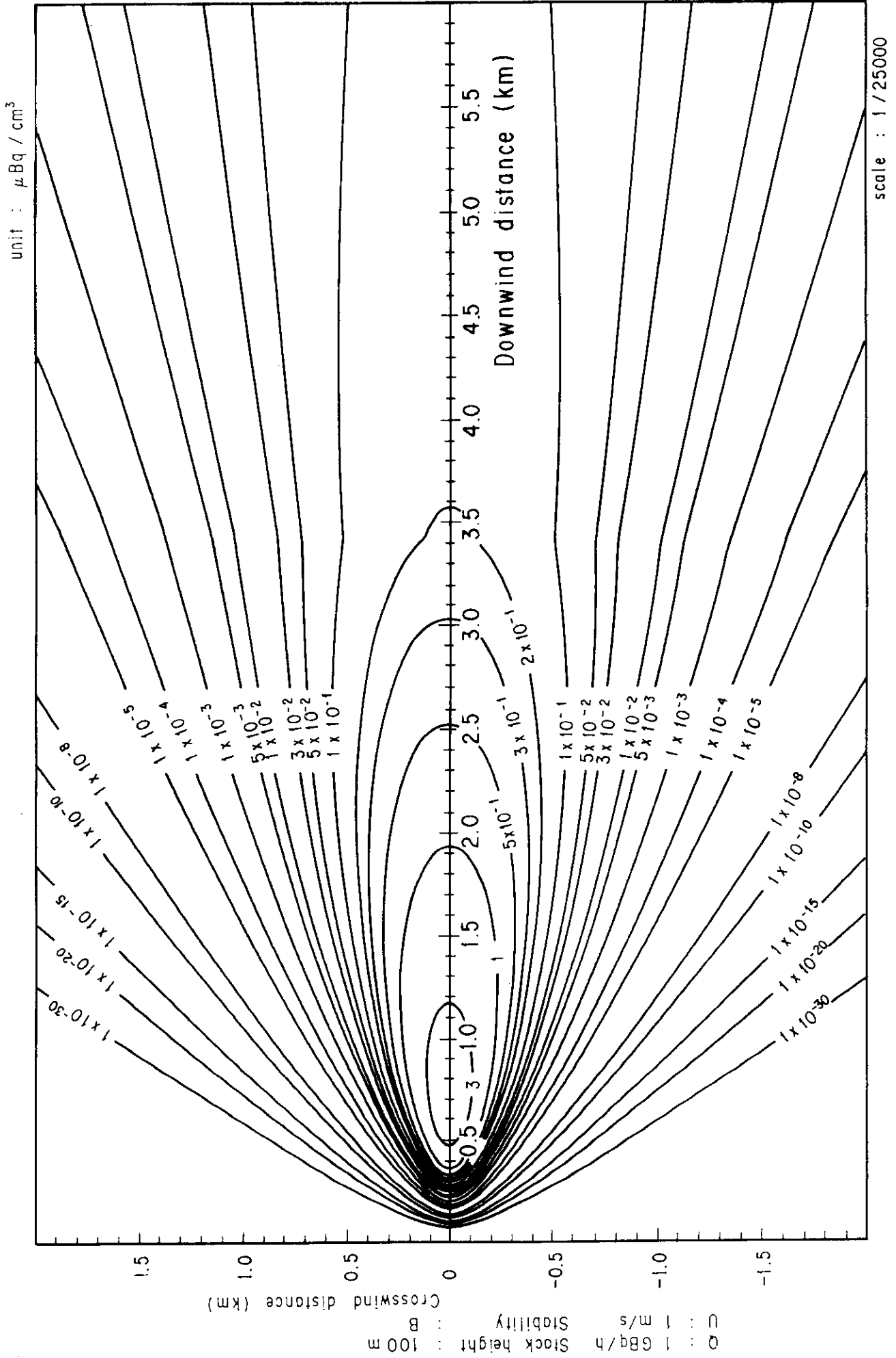


Fig. 2-9-2 (A) Isopleths of surface air concentration

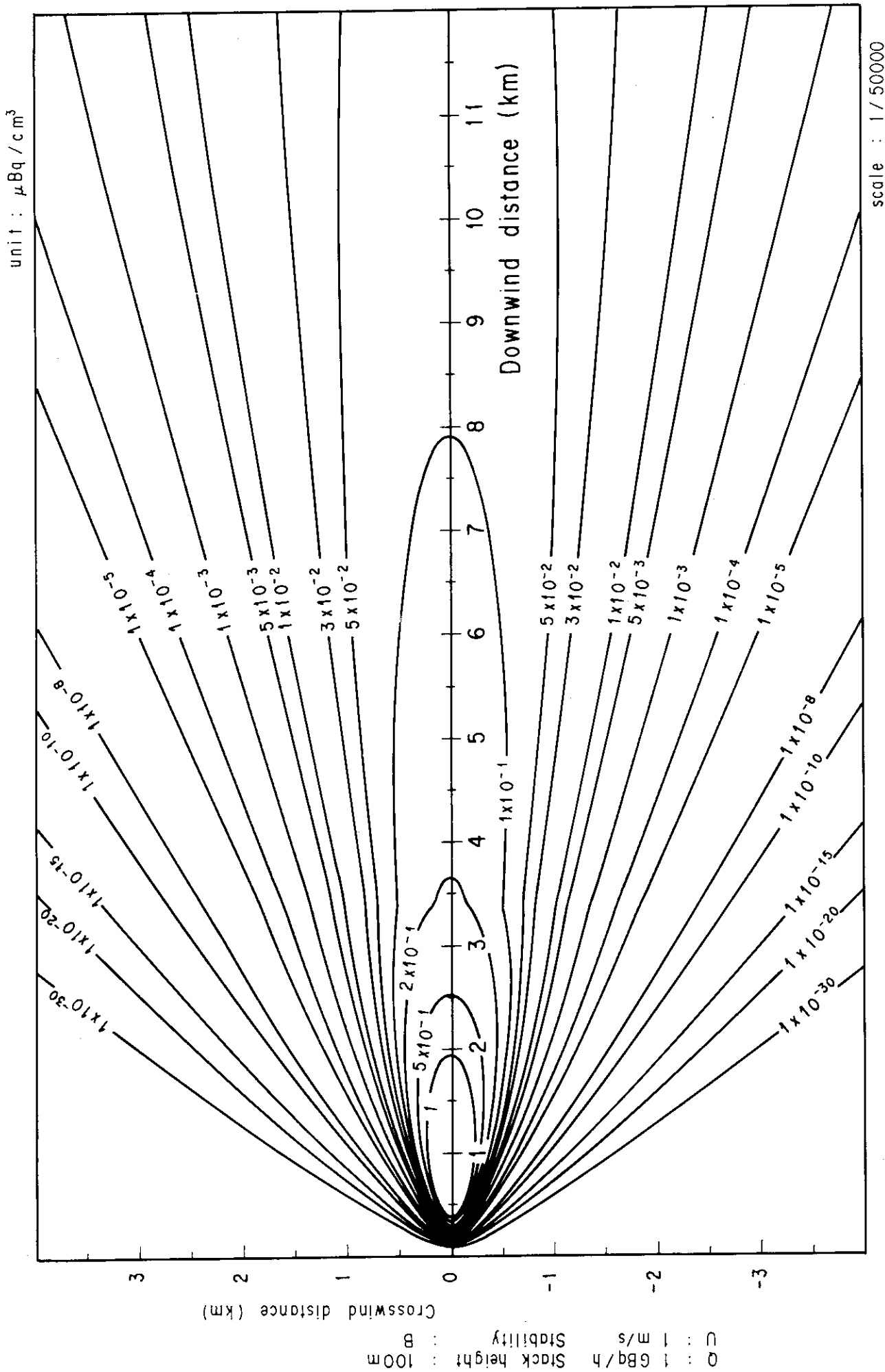


Fig. 2-9-2 (B) Isopleths of surface air concentration

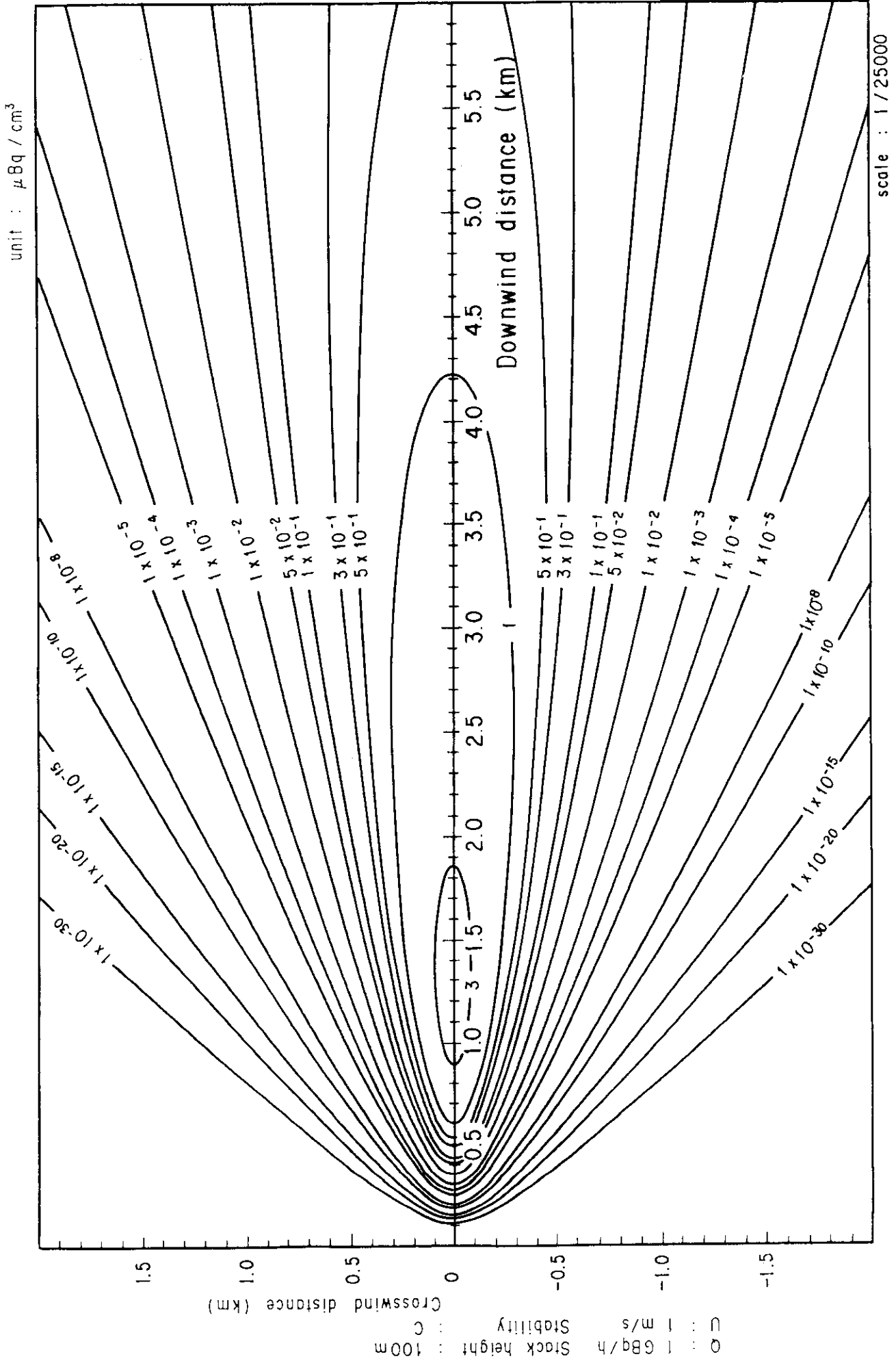


Fig. 2-9-3 (A) Isopleths of surface air concentration

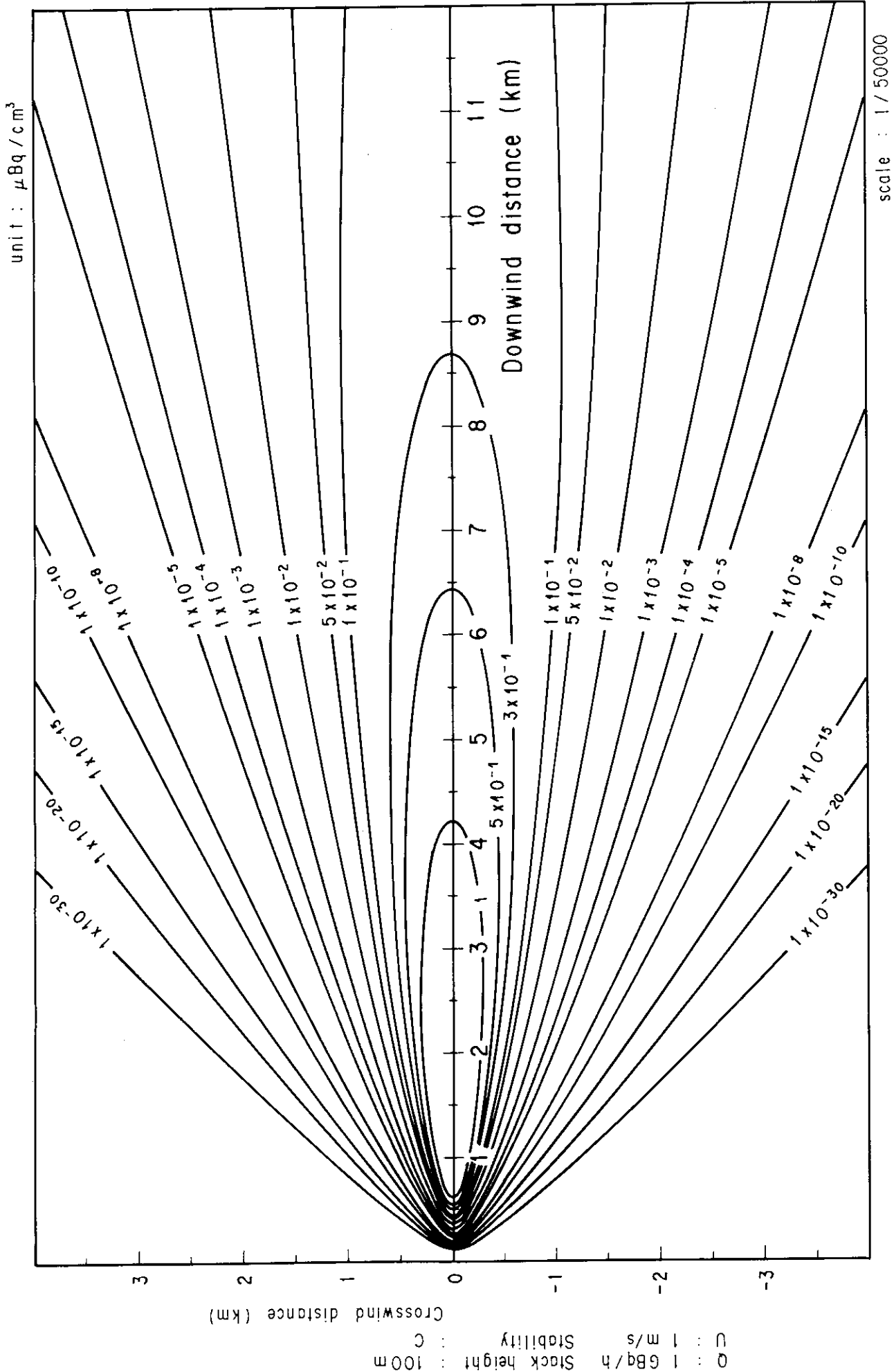


Fig. 2-9-3 (B) Isopleths of surface air concentration

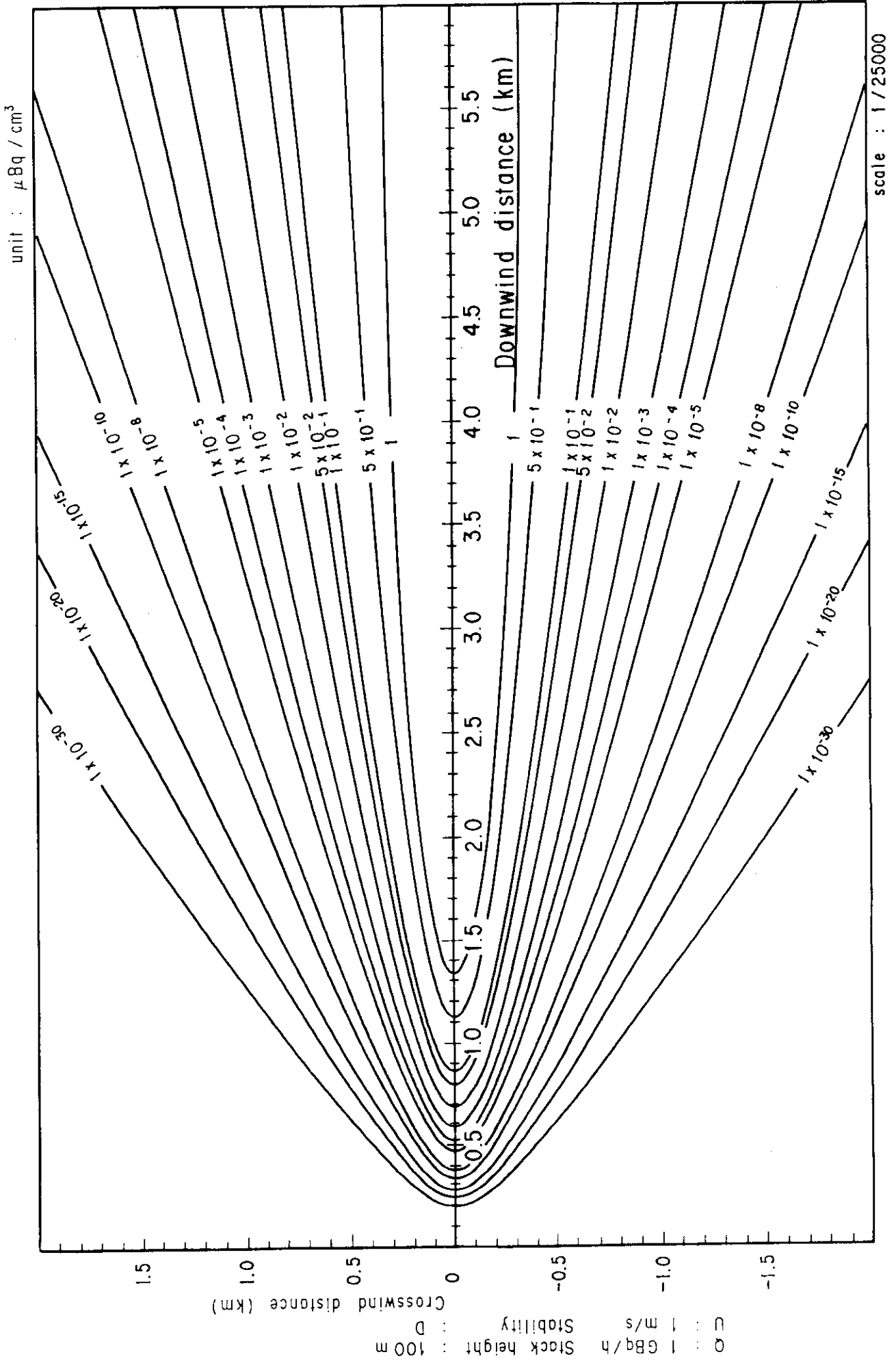


Fig. 2-9-4 (A) Isoleths of surface air concentration

Q : 1 GBq/h
 Stack height : 100 m
 Stability : D
 U : 1 m/s

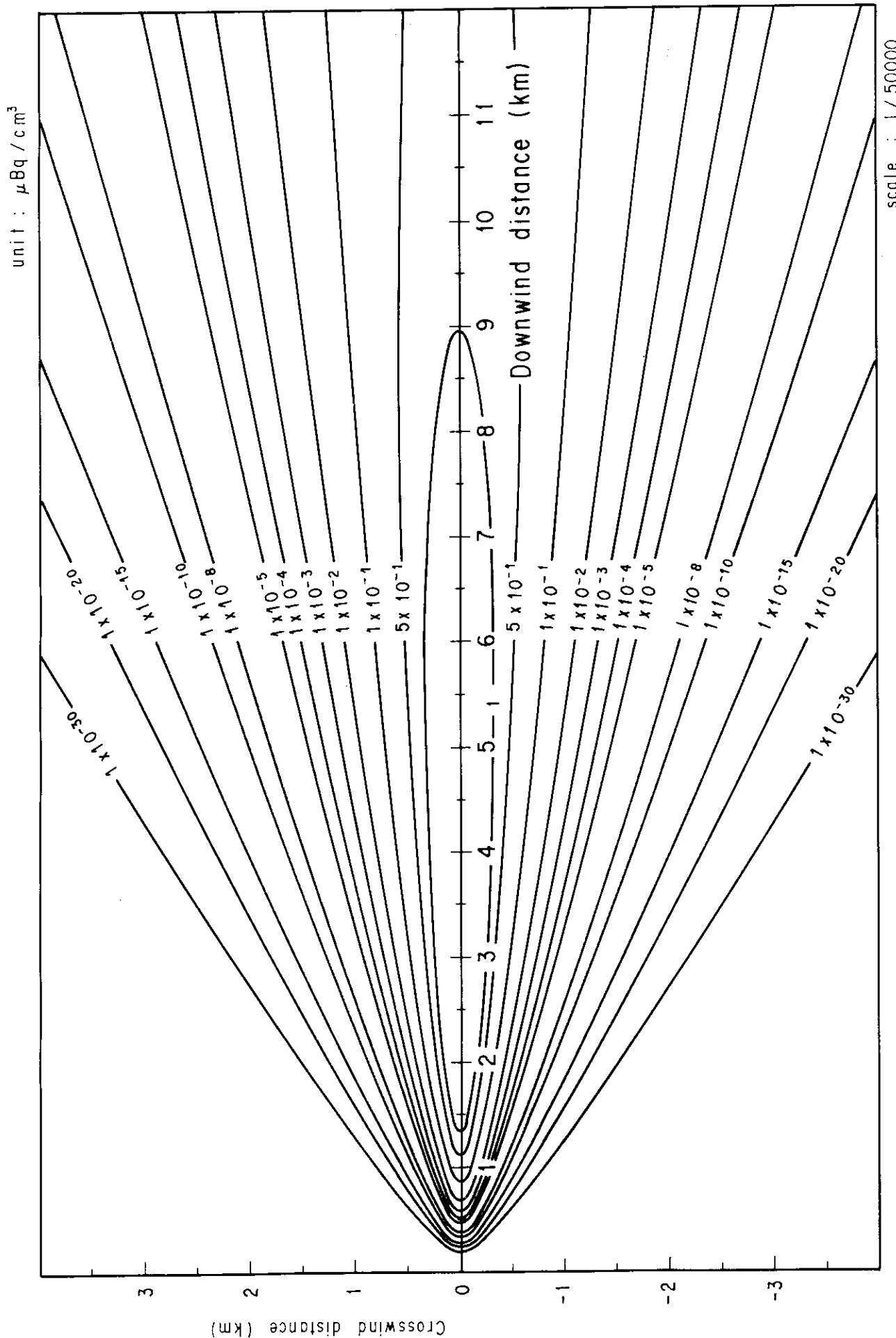


Fig. 2-9-4 (B) Isopleths of surface air concentration

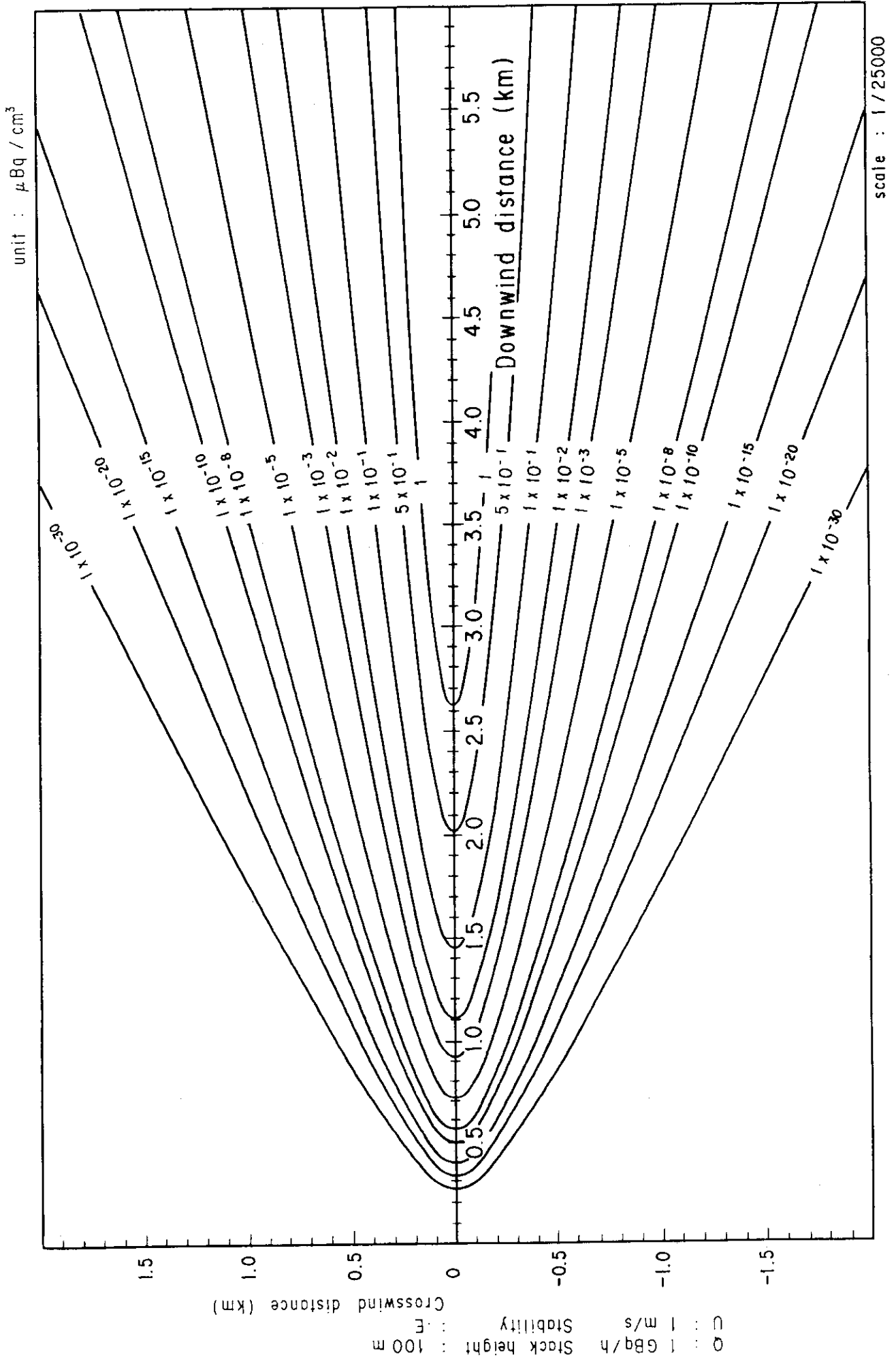


Fig. 2-9-5 (A) Isopleths of surface air concentration

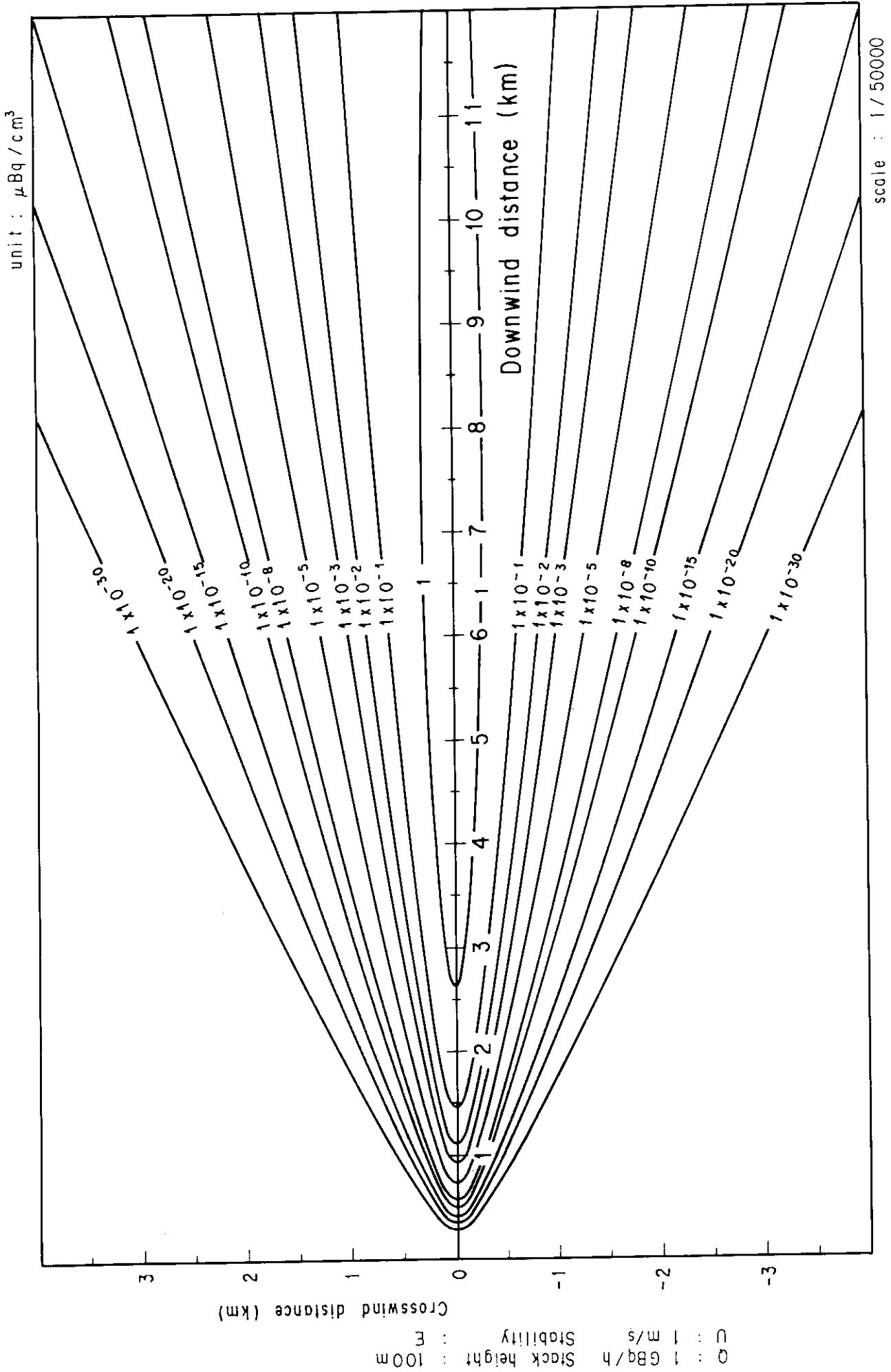


Fig. 2-9-5 (B) Isopleths of surface air concentration

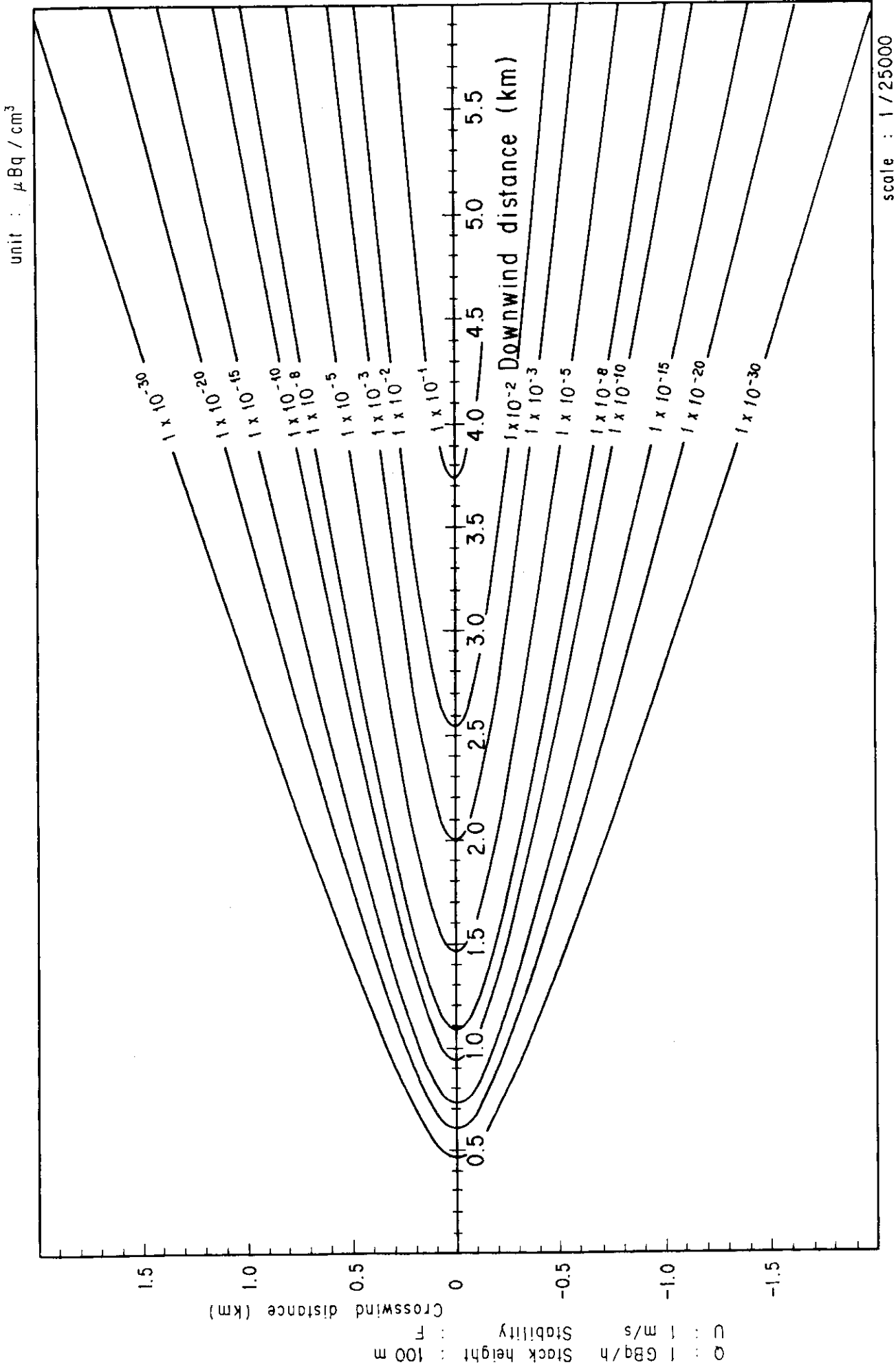


Fig. 2-9-6 (A) Isopleths of surface air concentration

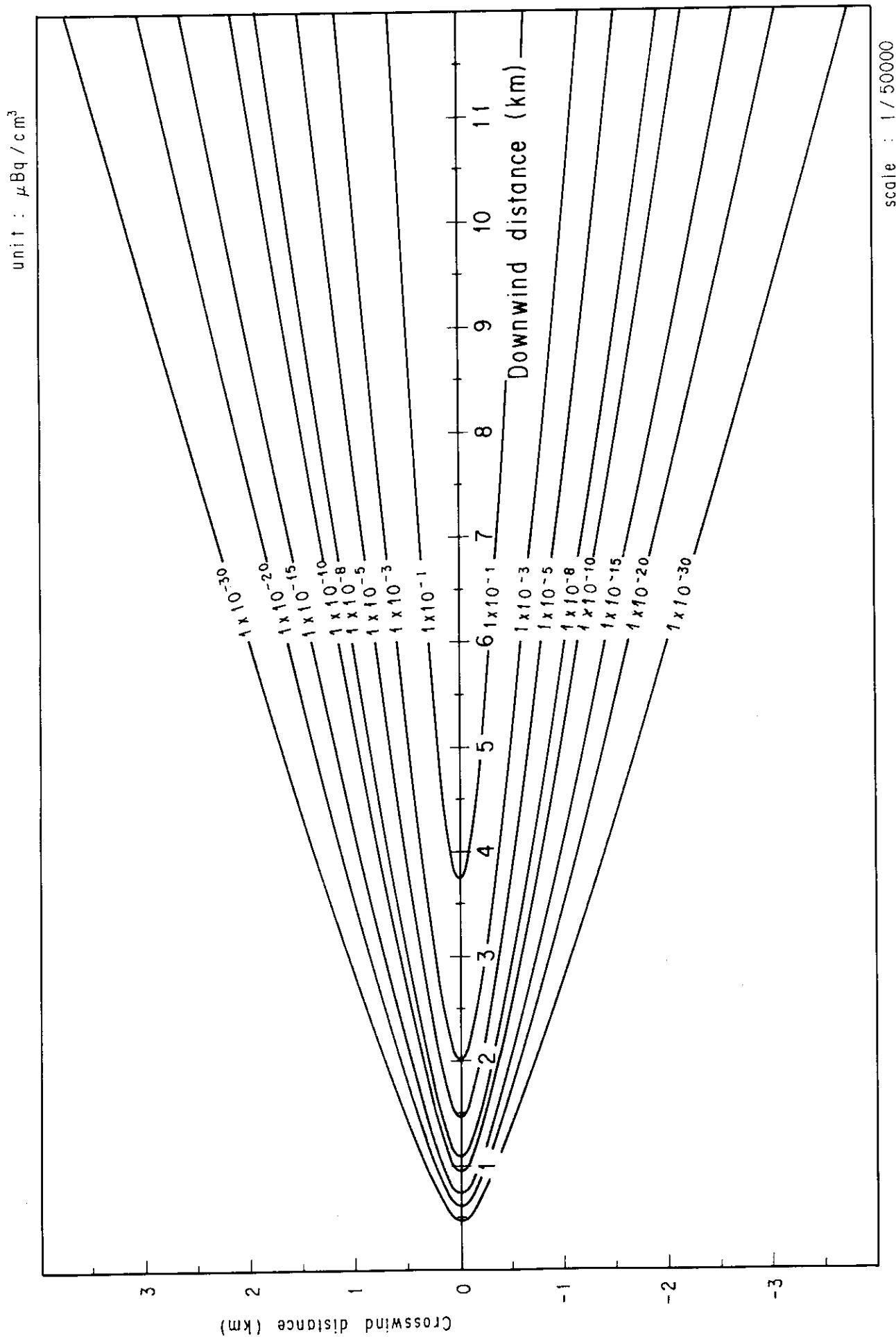


Fig.2-9-6 (B) Isopleths of surface air concentration

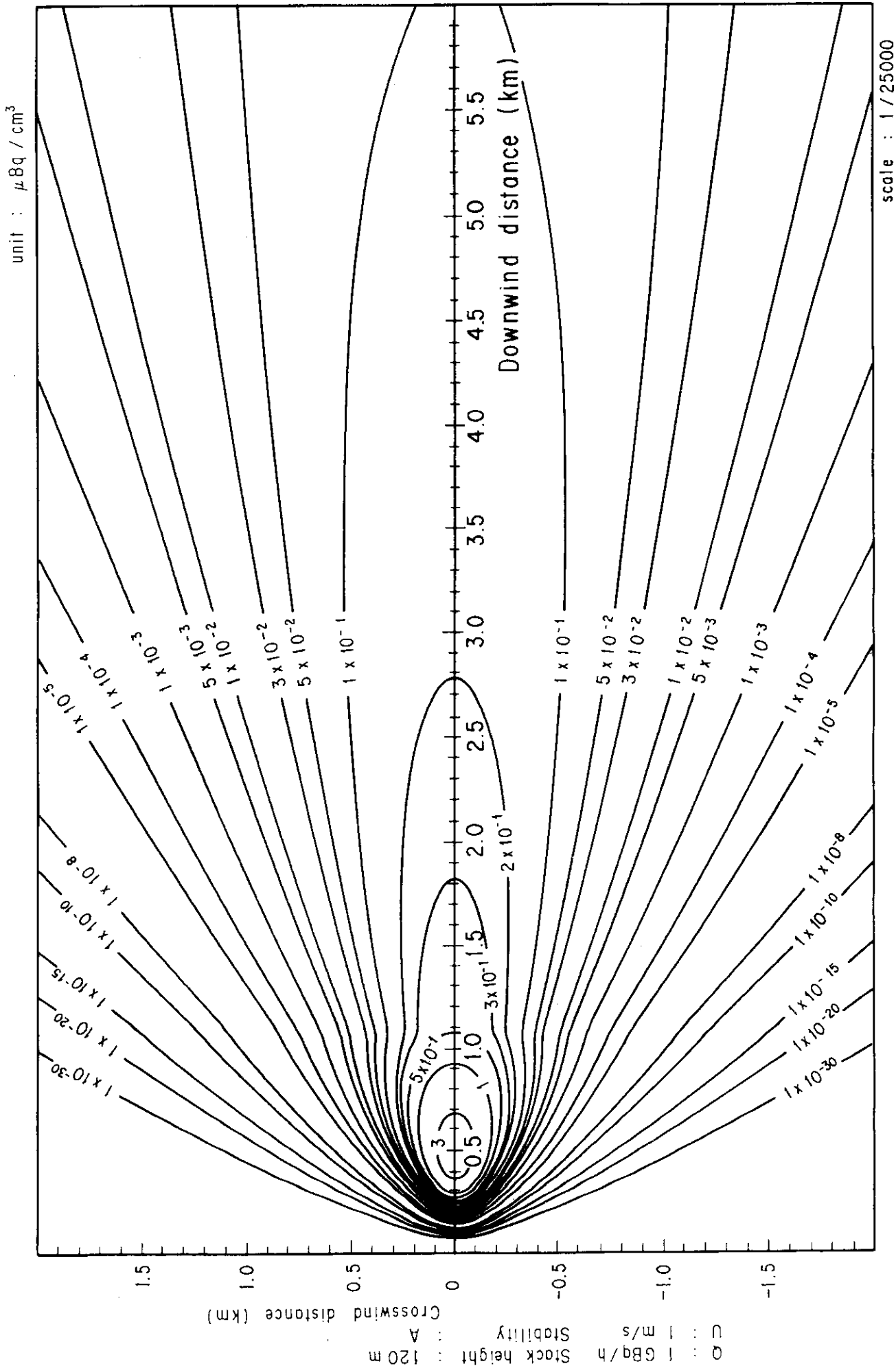


Fig. 2-10-1 (A) Isopleths of surface air concentration

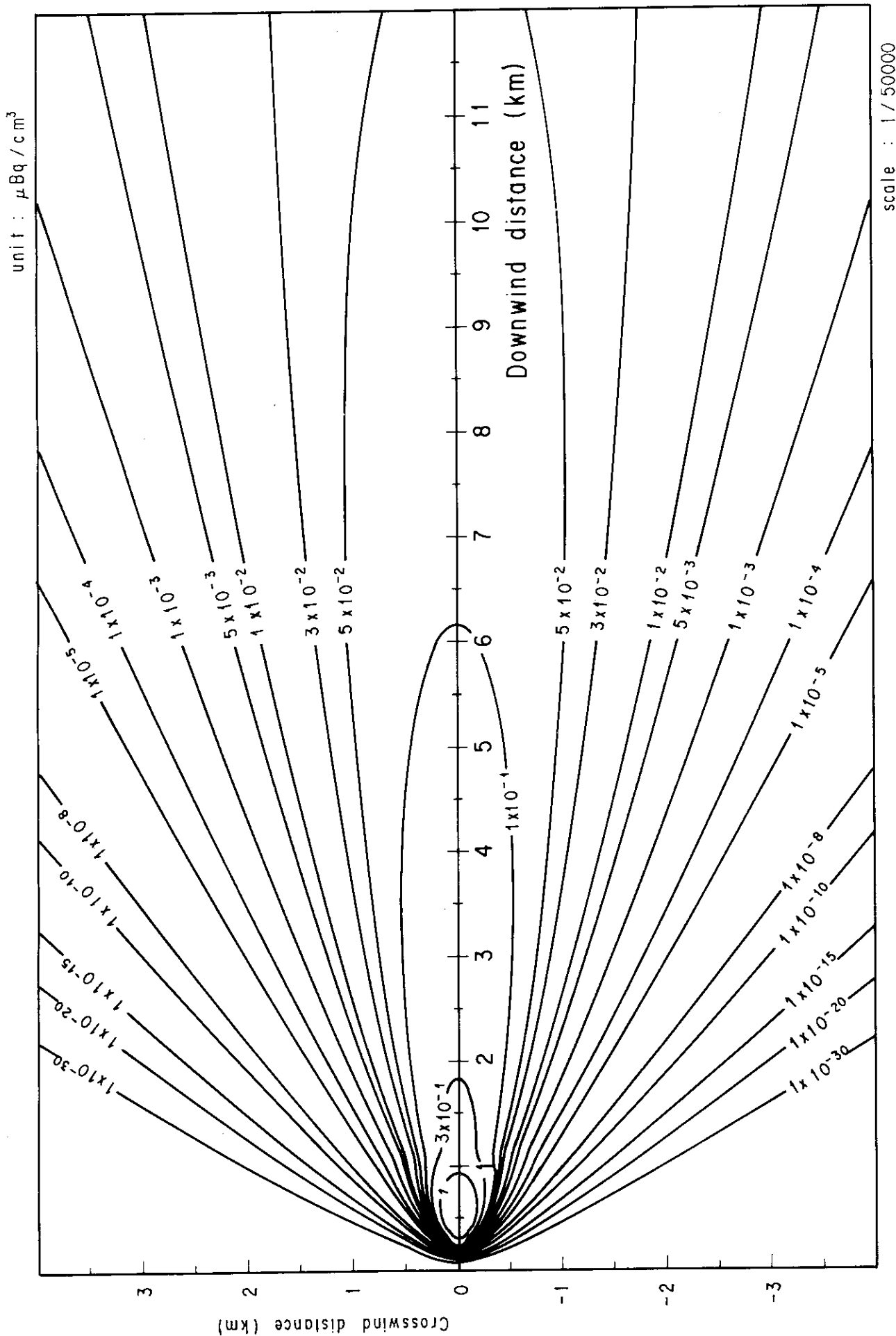


Fig.2-10-1 (B) Isopleths of surface air concentration

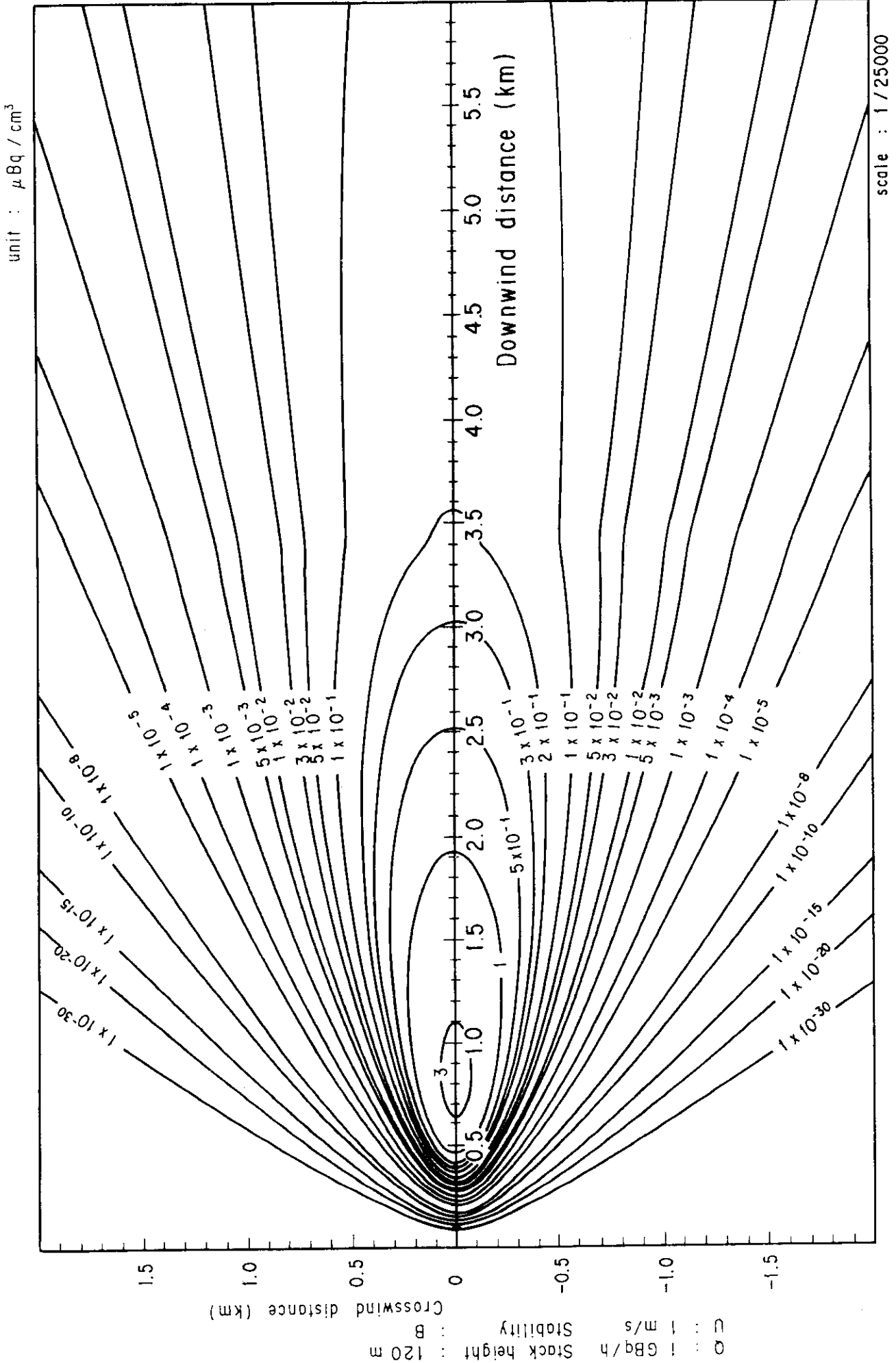


Fig. 2-10-2 (A) Isopleths of surface air concentration

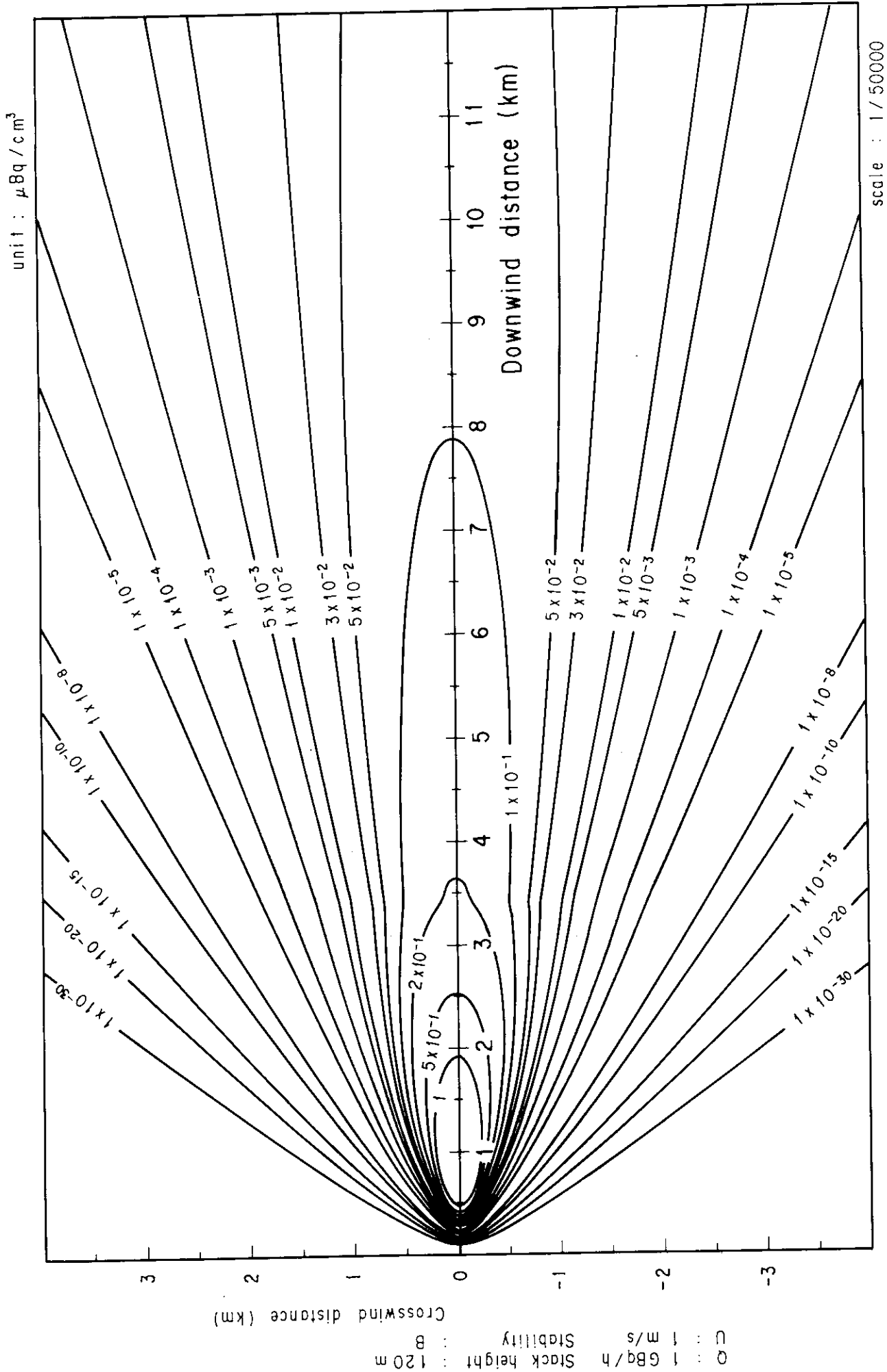


Fig.2-10-2 (B) Isopleths of surface air concentration

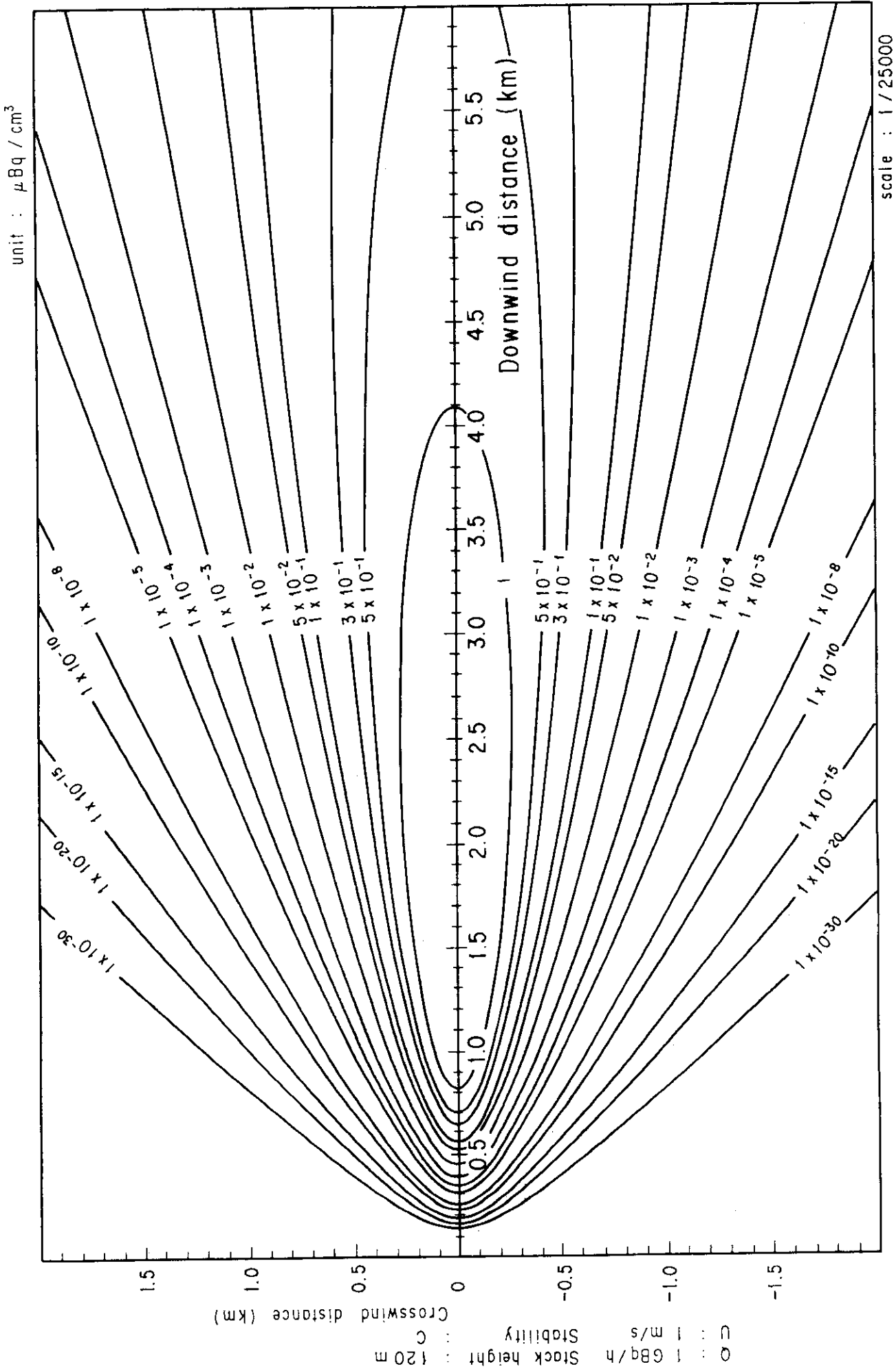


Fig. 2-10-3 (A) Isopleths of surface air concentration

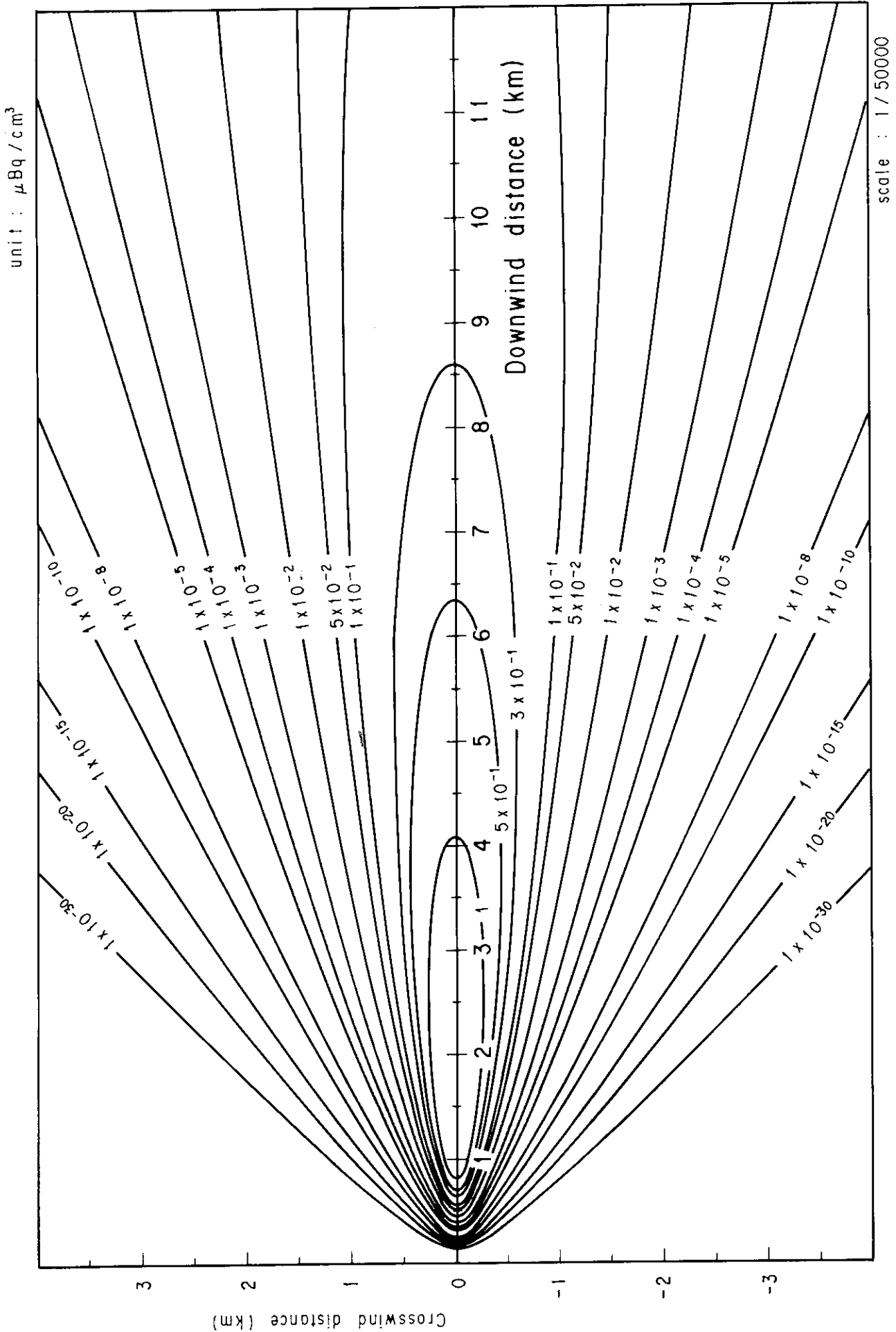


Fig. 2-10-3 (B) Isopleths of surface air concentration

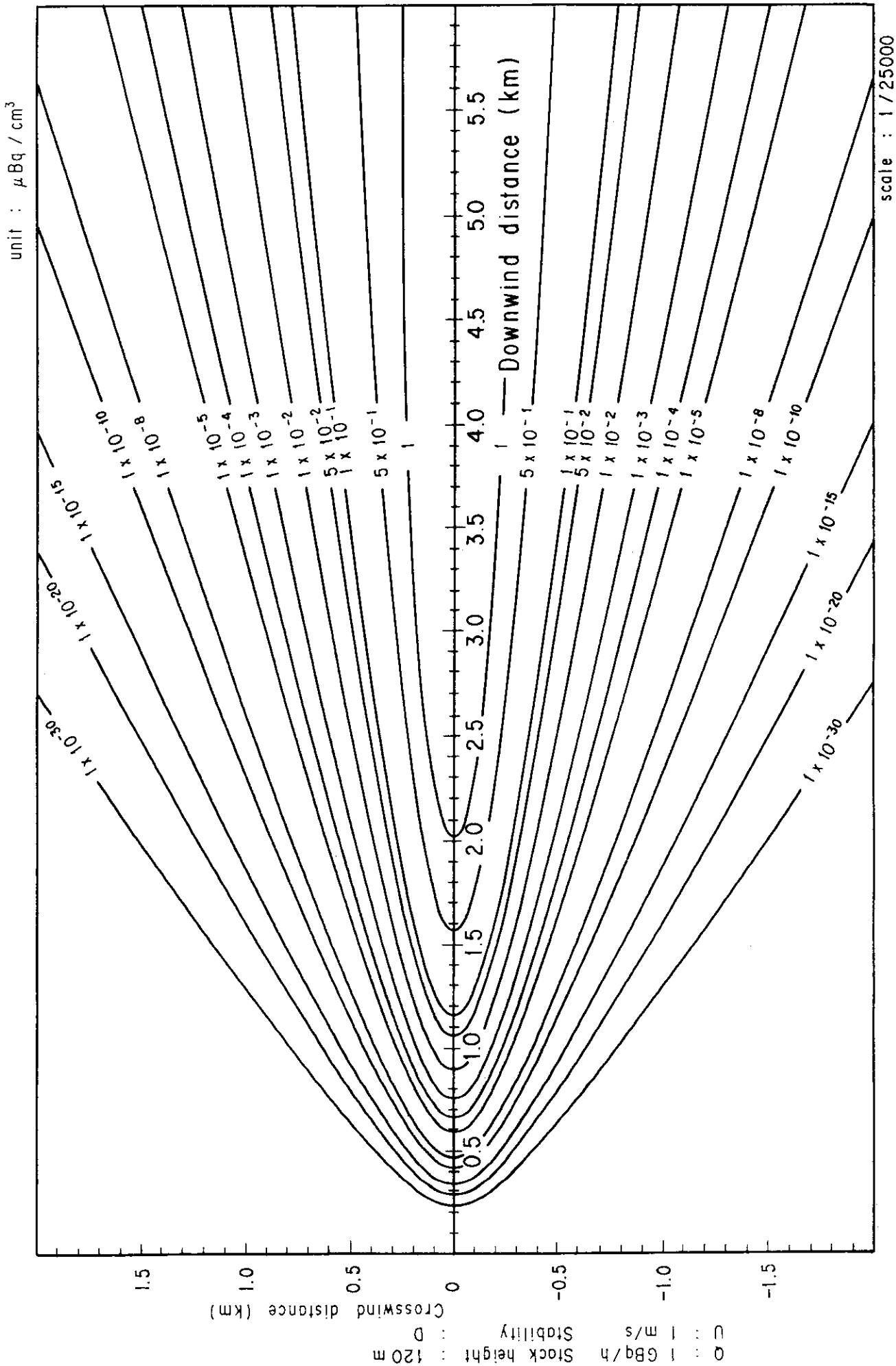


Fig. 2-10-4 (A) Isopleths of surface air concentration

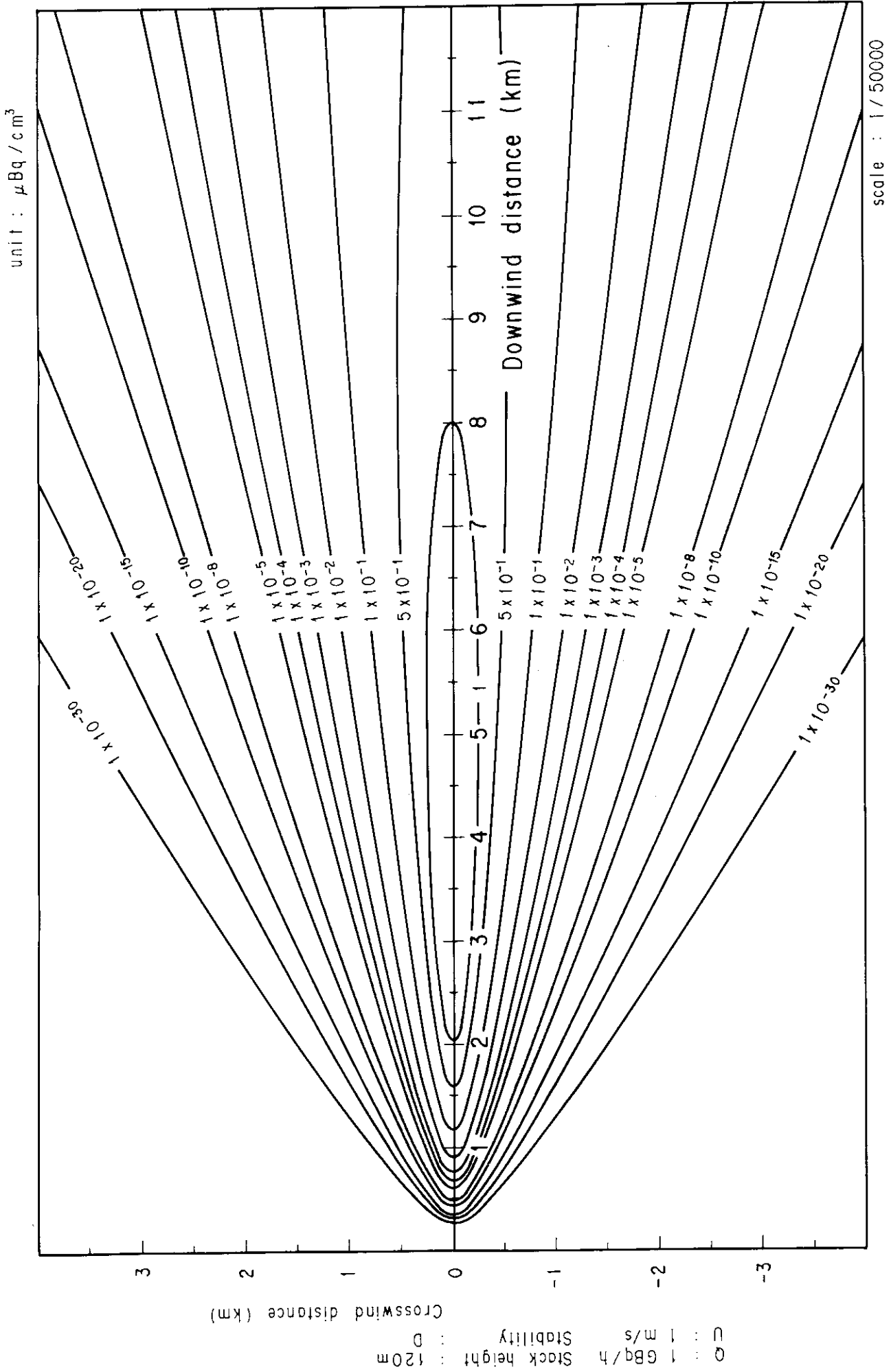


Fig. 2-10-4 (B) Isopleths of surface air concentration

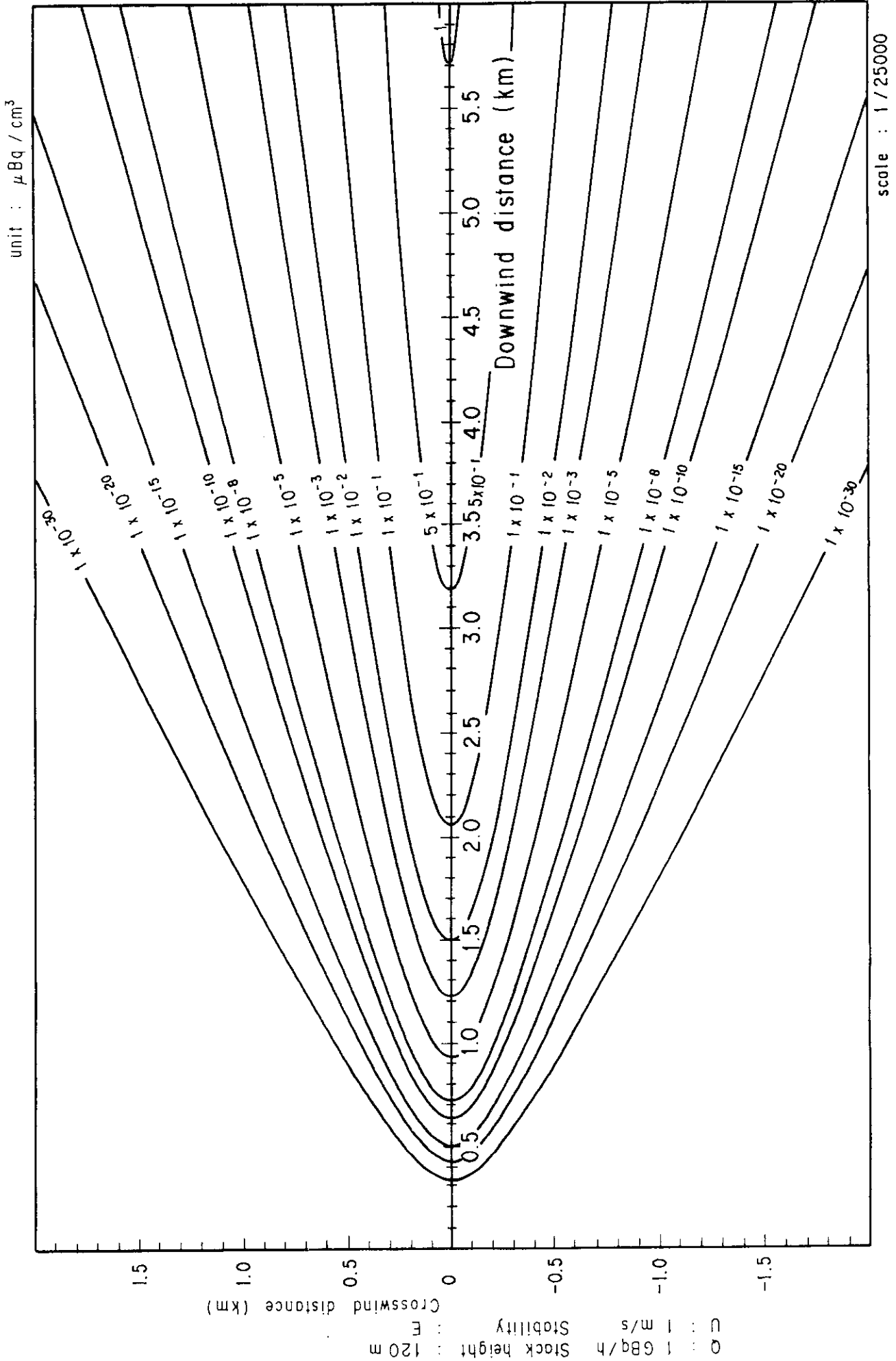


Fig. 2-10-5 (A) Isopleths of surface air concentration

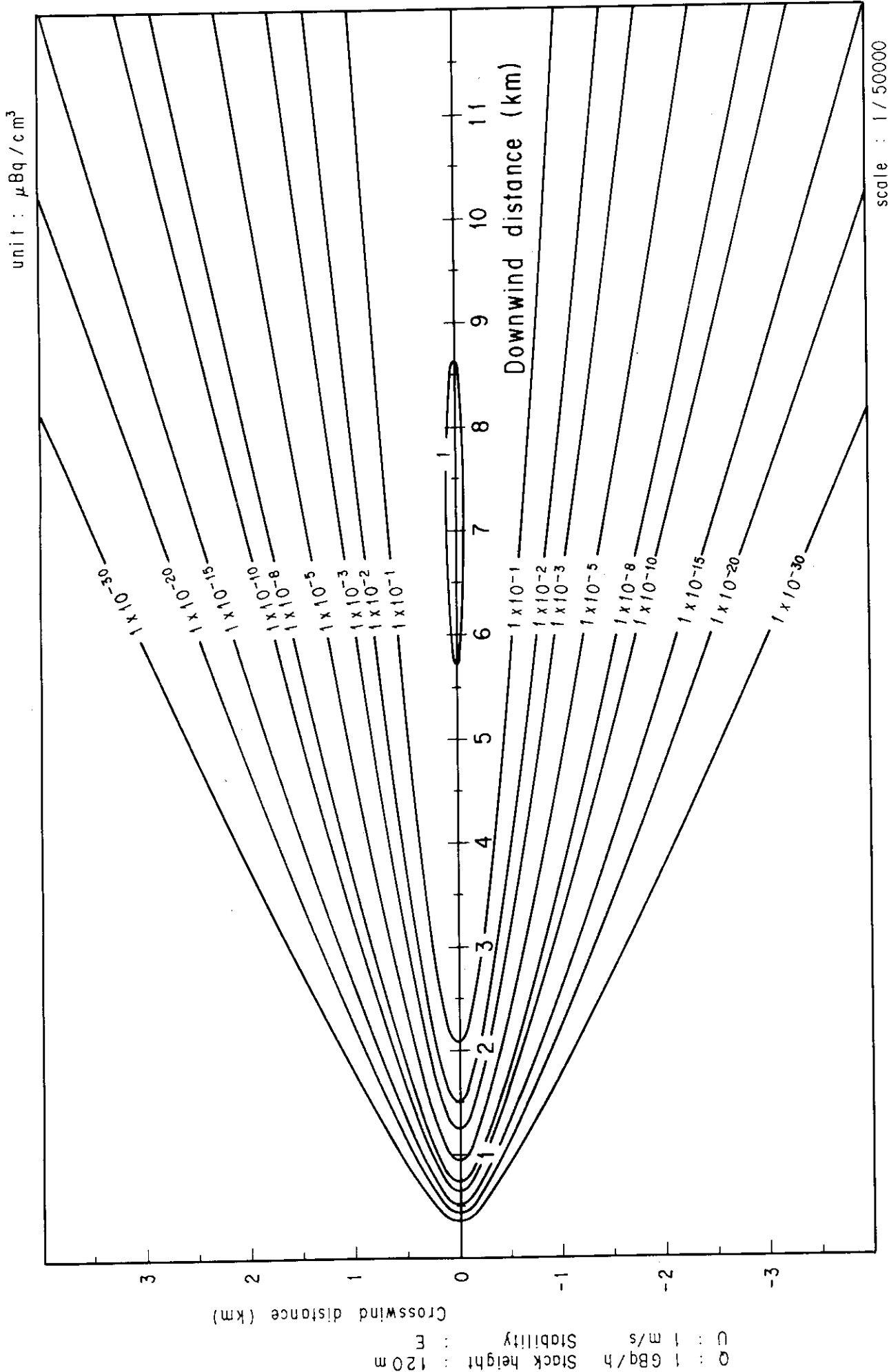


Fig.2-10-5 (B) Isopleths of surface air concentration

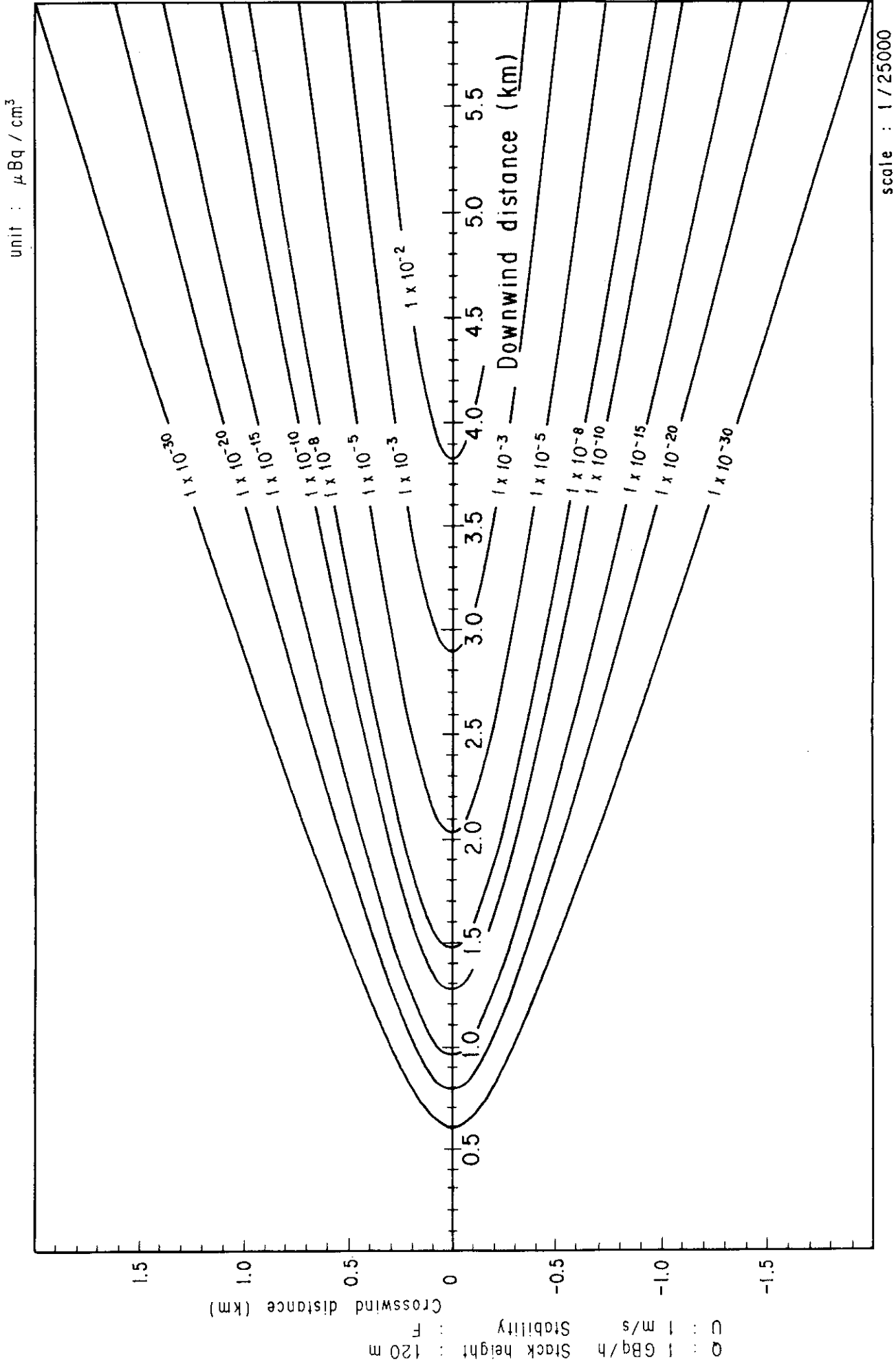


Fig. 2-10-6 (A) Isopleths of surface air concentration

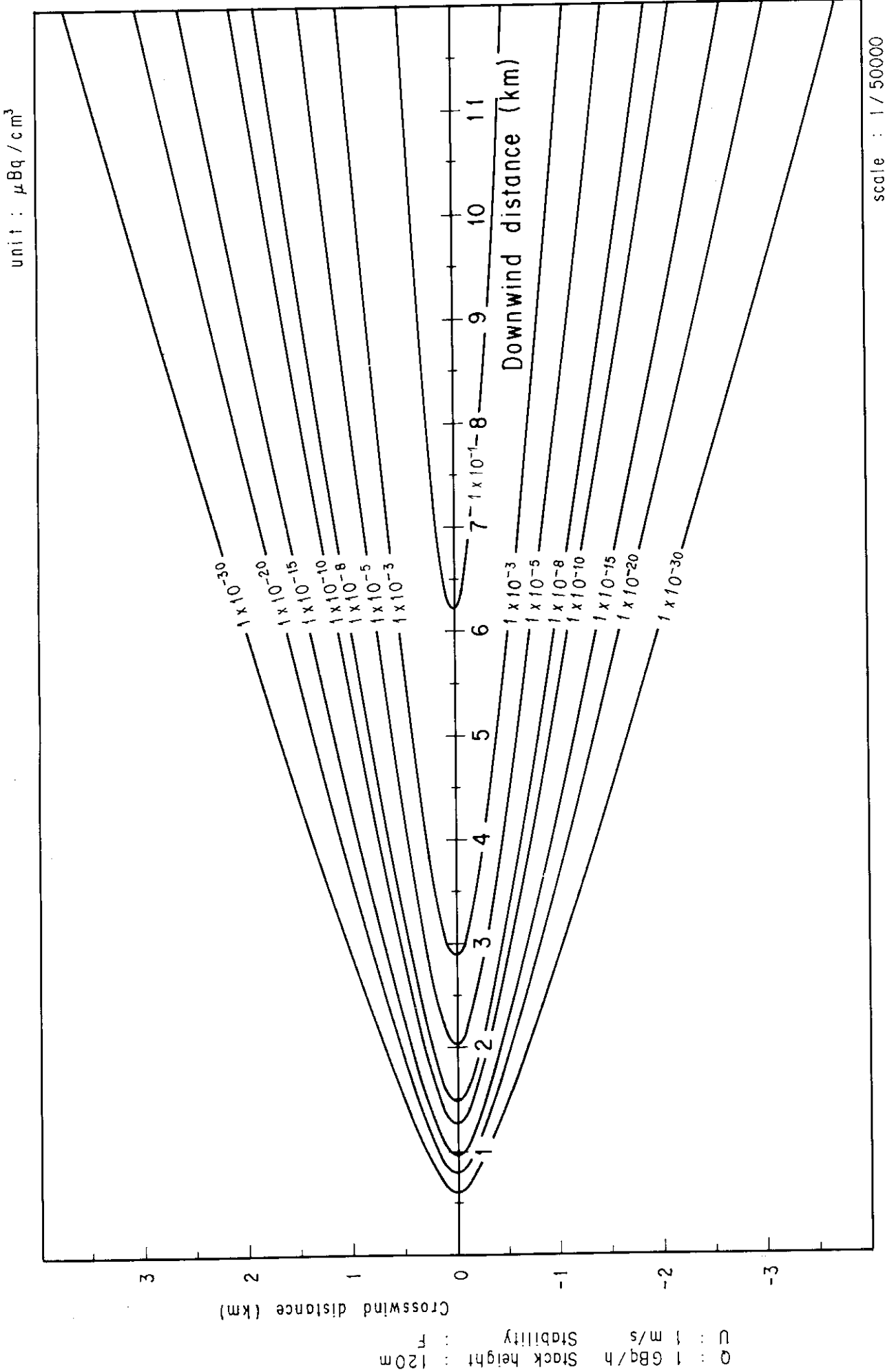


Fig. 2-10-6(B) Isopleths of surface air concentration

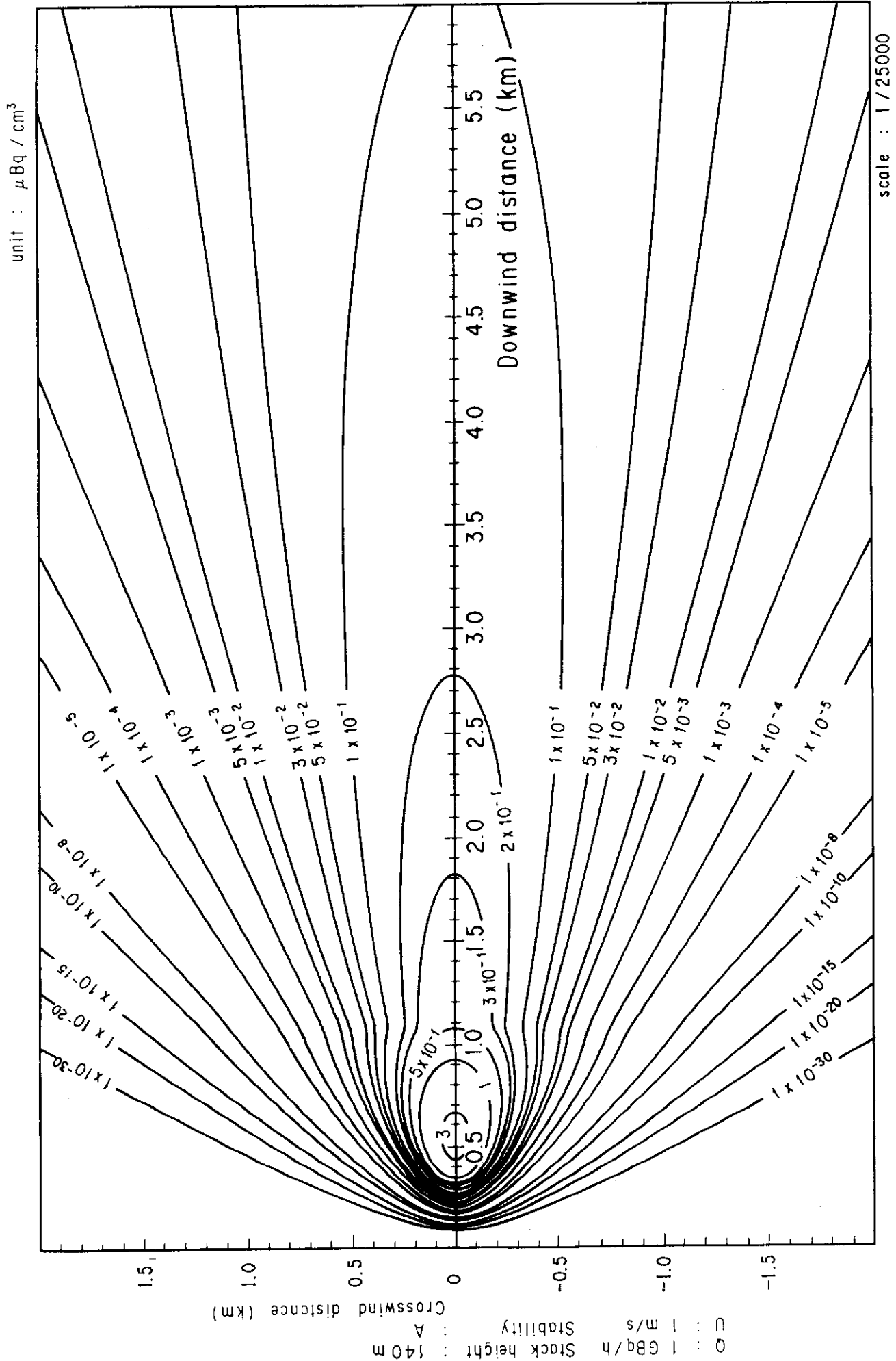


Fig. 2-11-1 (A) Isopleths of surface air concentration

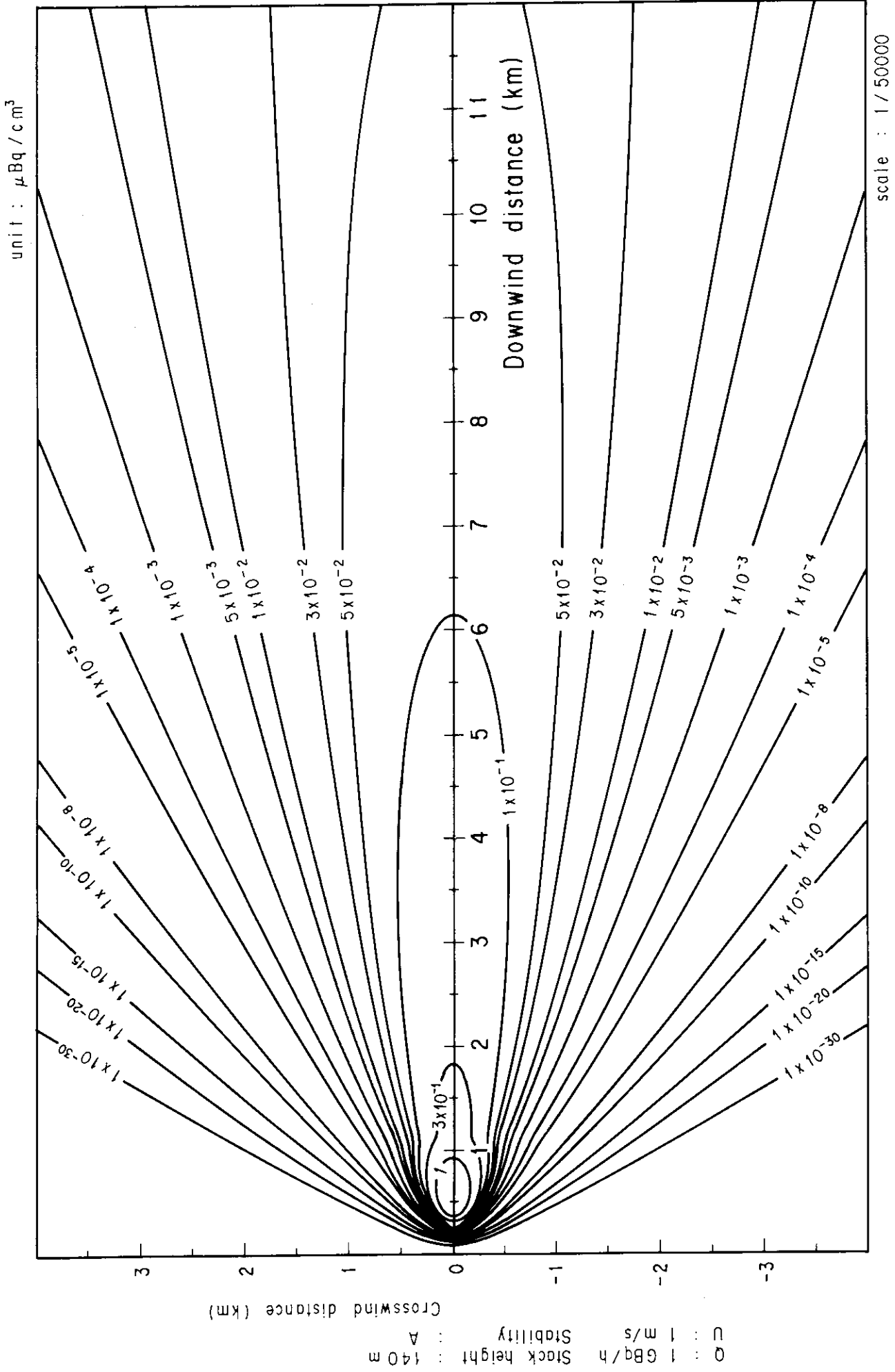


Fig. 2-11-1 (B) Isopleths of surface air concentration

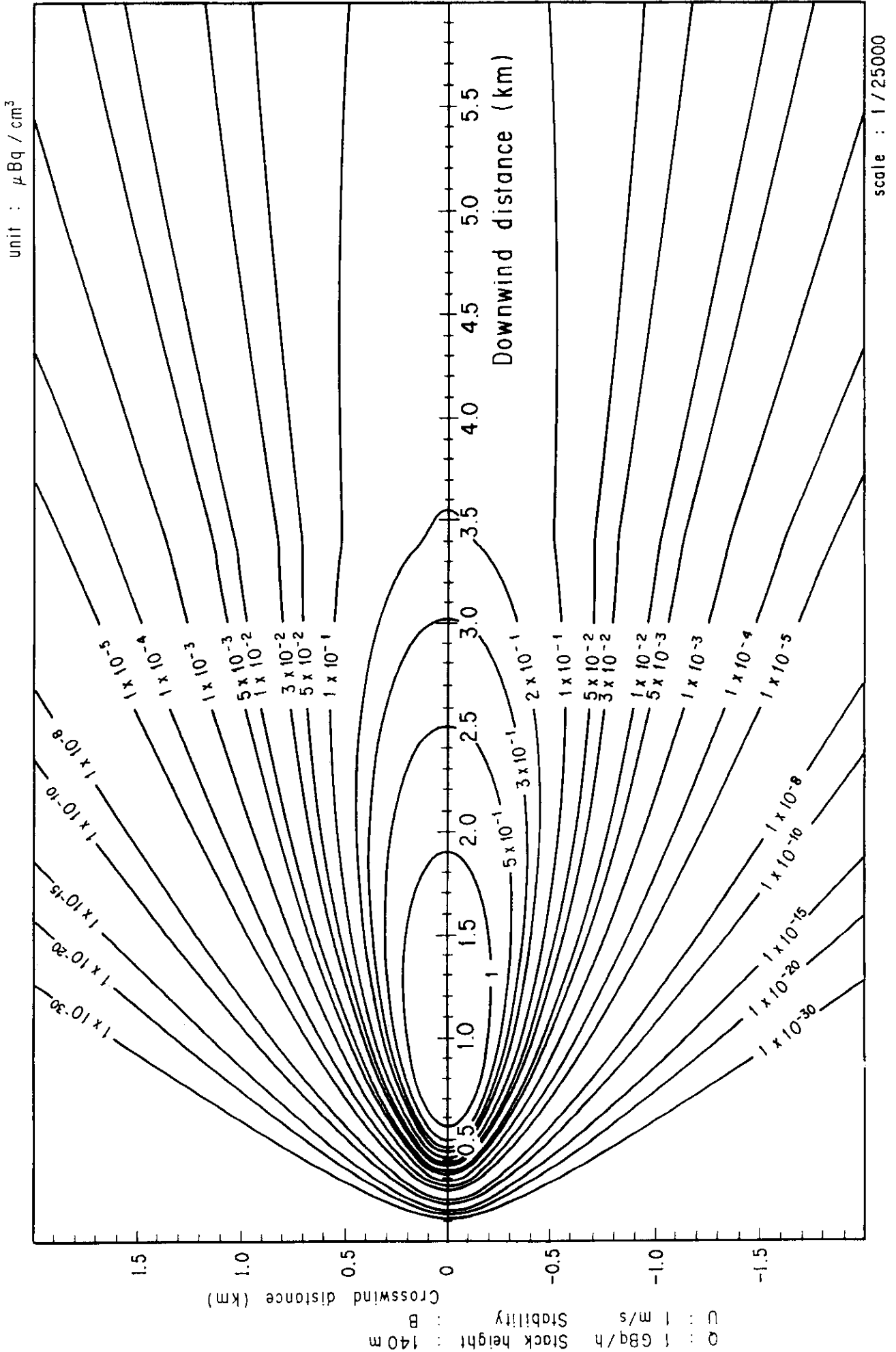


Fig. 2-11-2 (A) Isopleths of surface air concentration

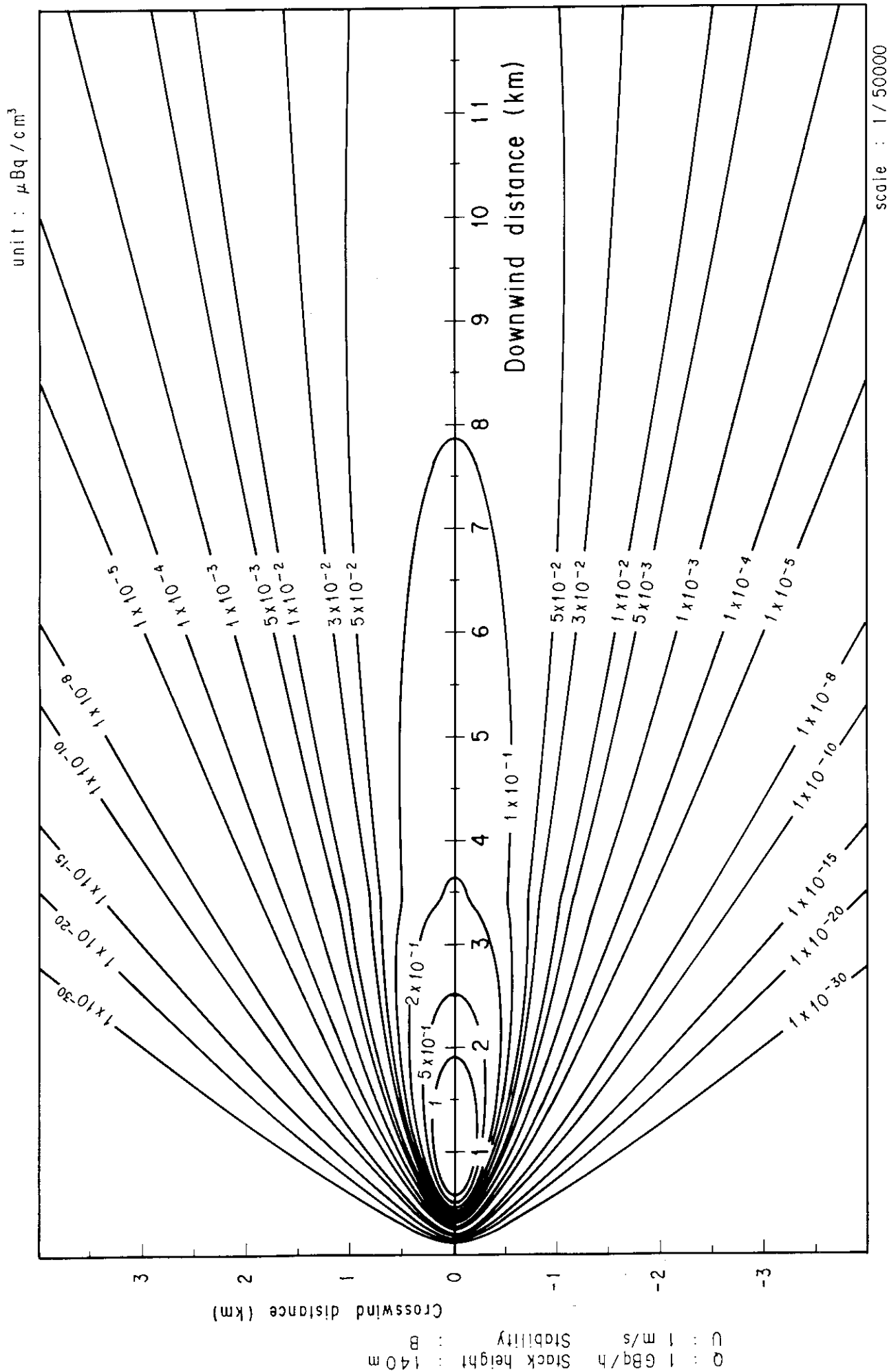


Fig. 2-11-2 (B) Isopleths of surface air concentration

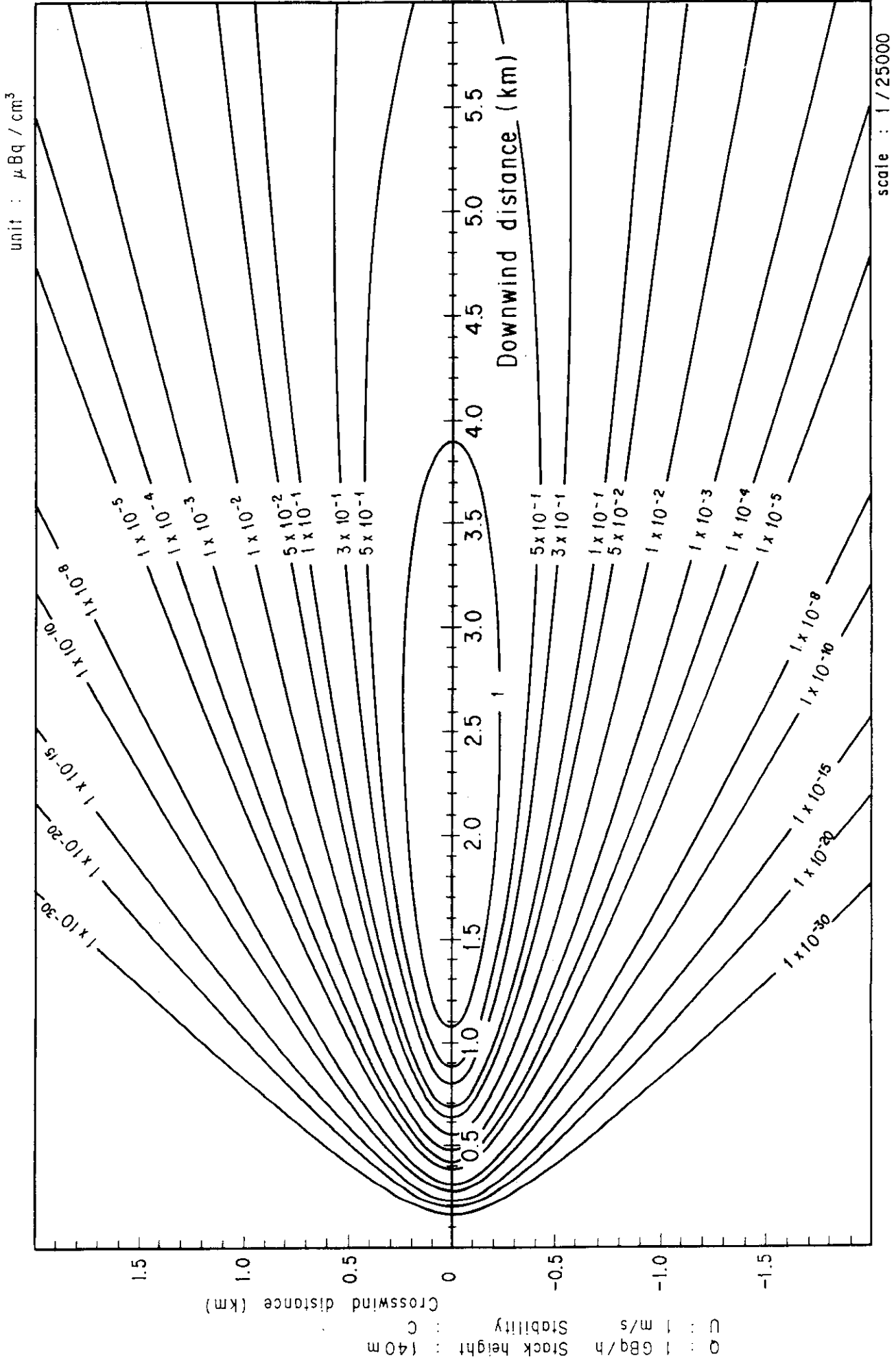


Fig. 2-11-3 (A) Isopleths of surface air concentration

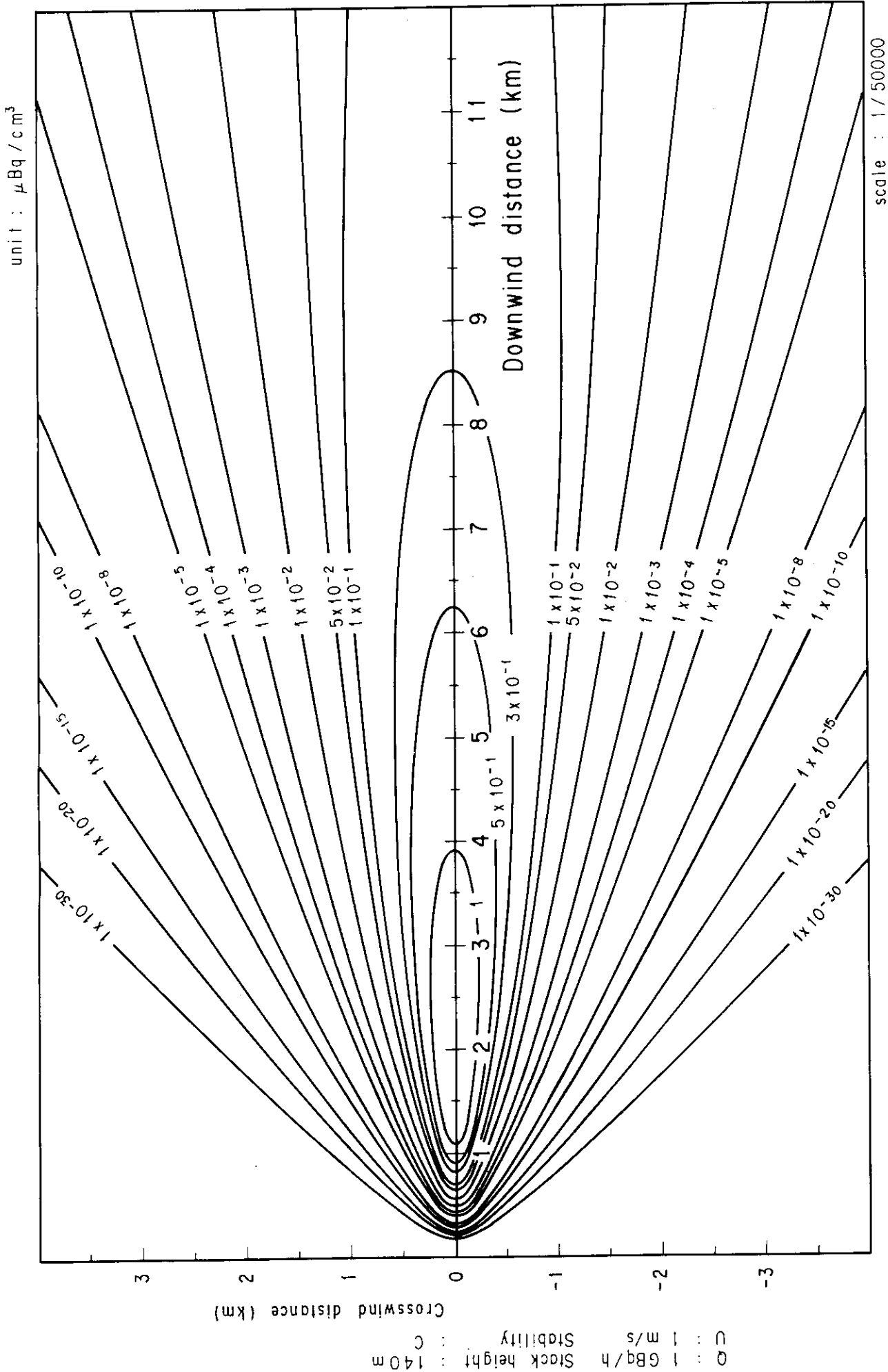


Fig. 2-11-3 (B) Isopleths of surface air concentration

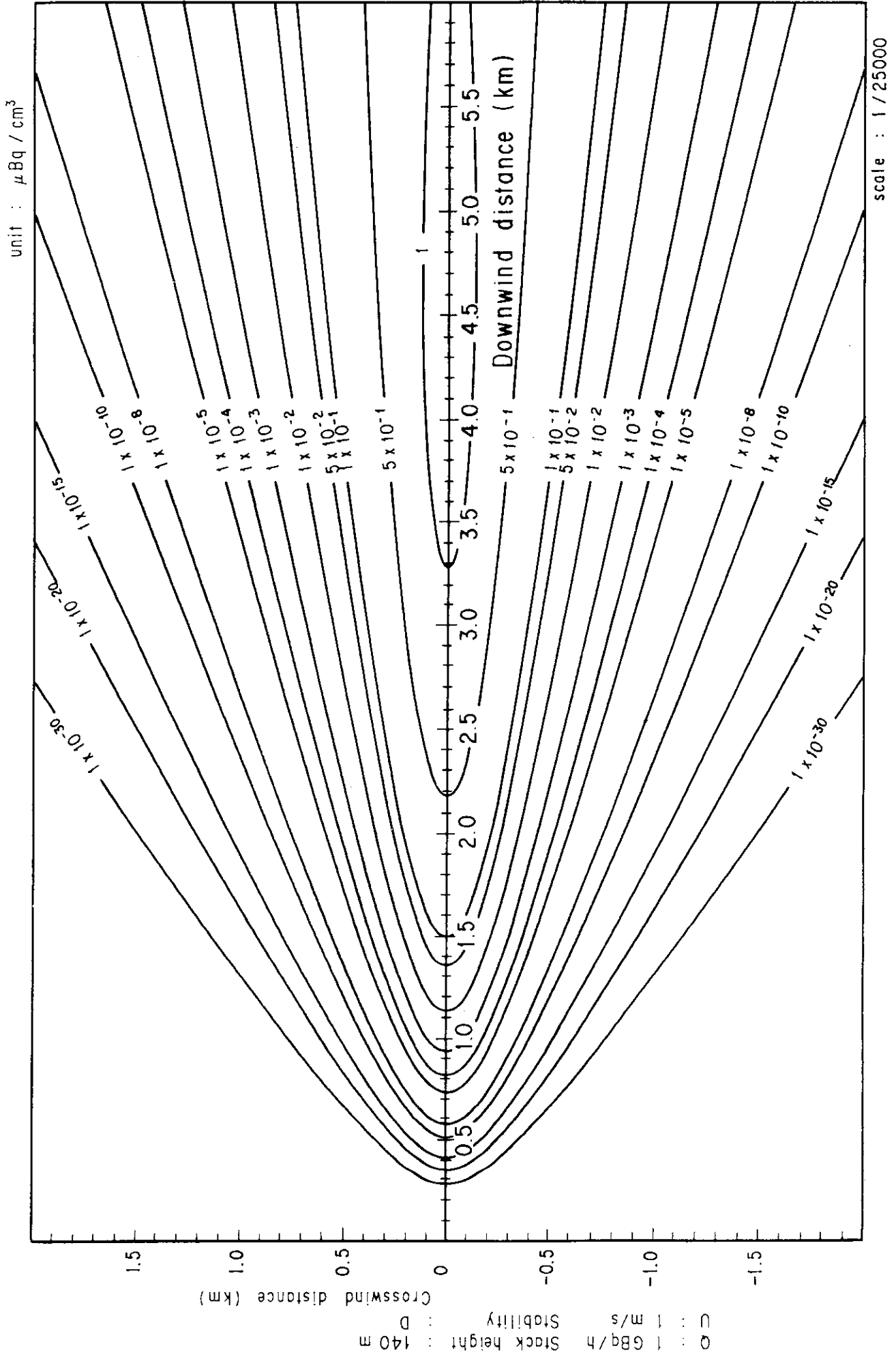


Fig. 2-11-4 (A) Isopleths of surface air concentration

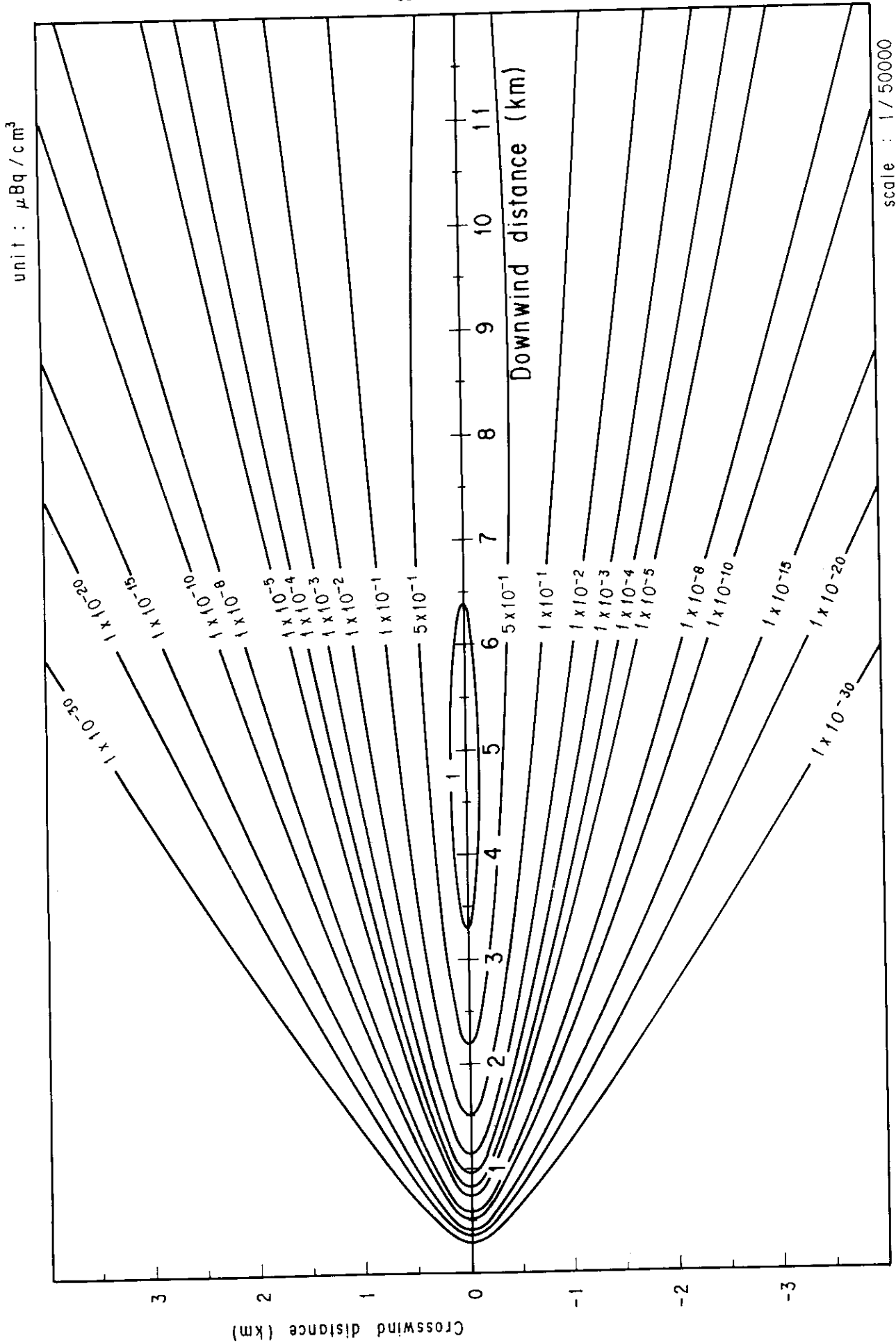


Fig. 2-11-4 (B) Isopleths of surface air concentration

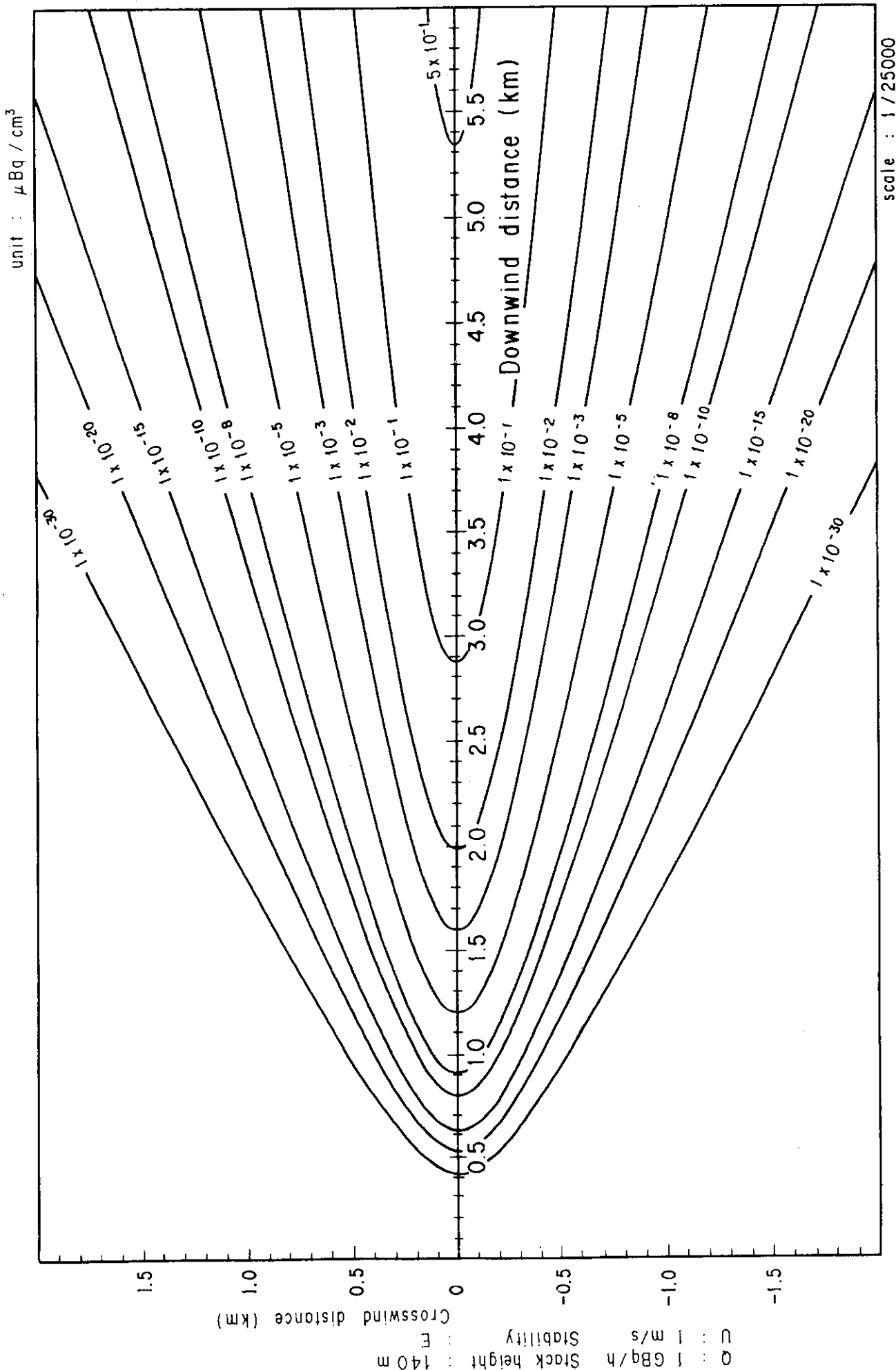


Fig. 2-11-5 (A) Isopleths of surface air concentration

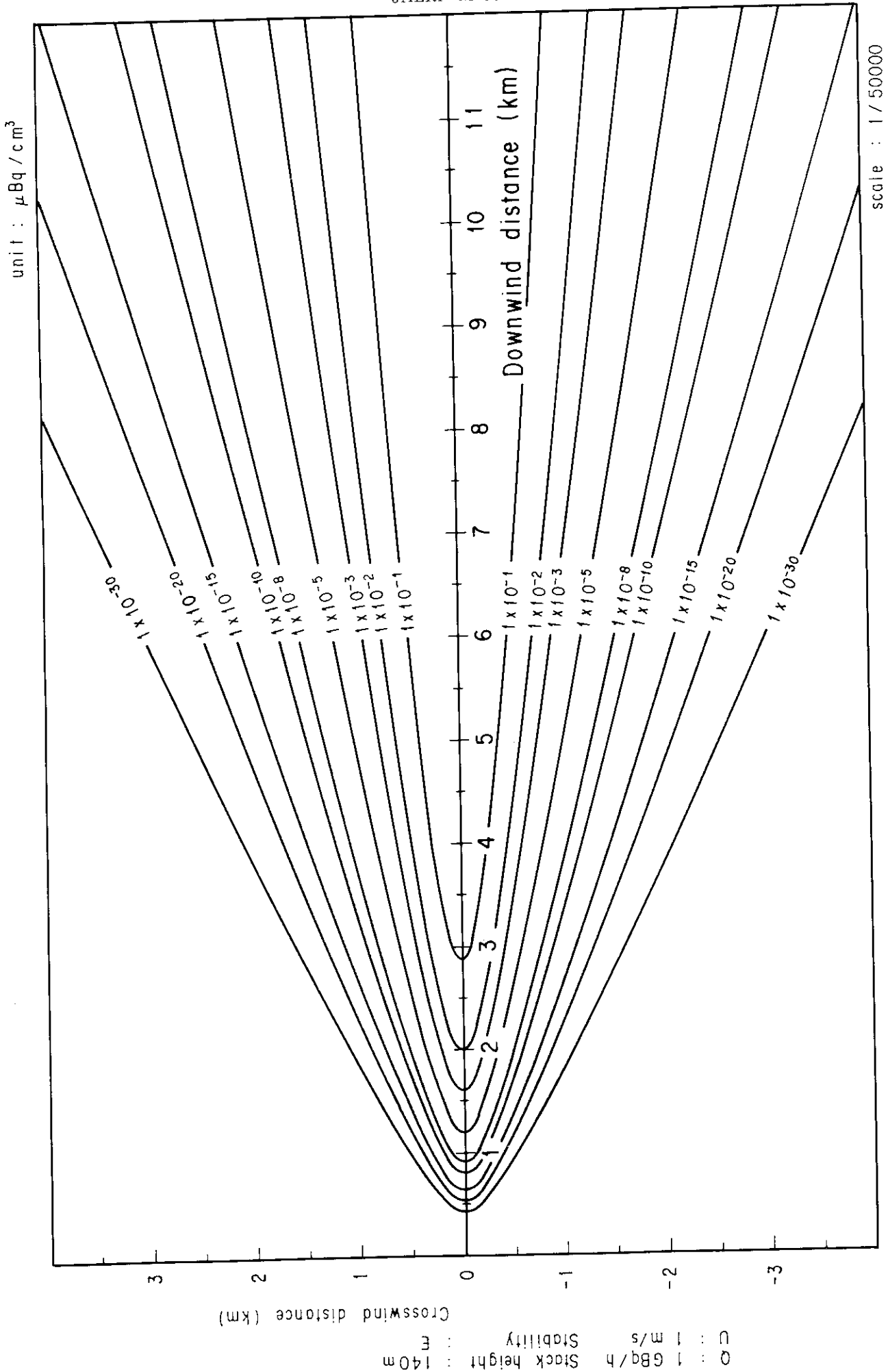
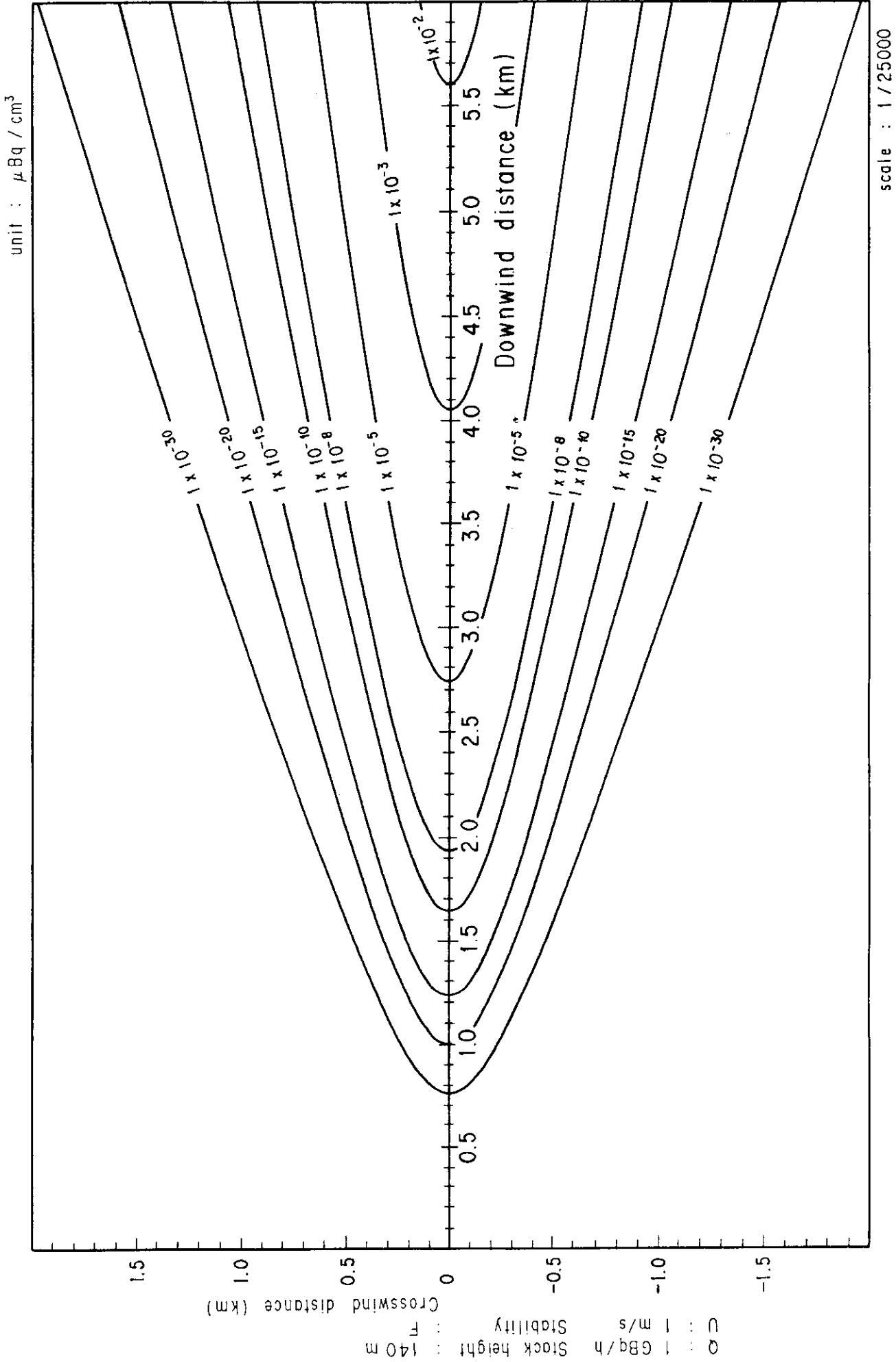


Fig. 2-11-5 (B) Isopleths of surface air concentration



scale : 1 / 25000

Fig. 2-11-6 (A) Isopleths of surface air concentration

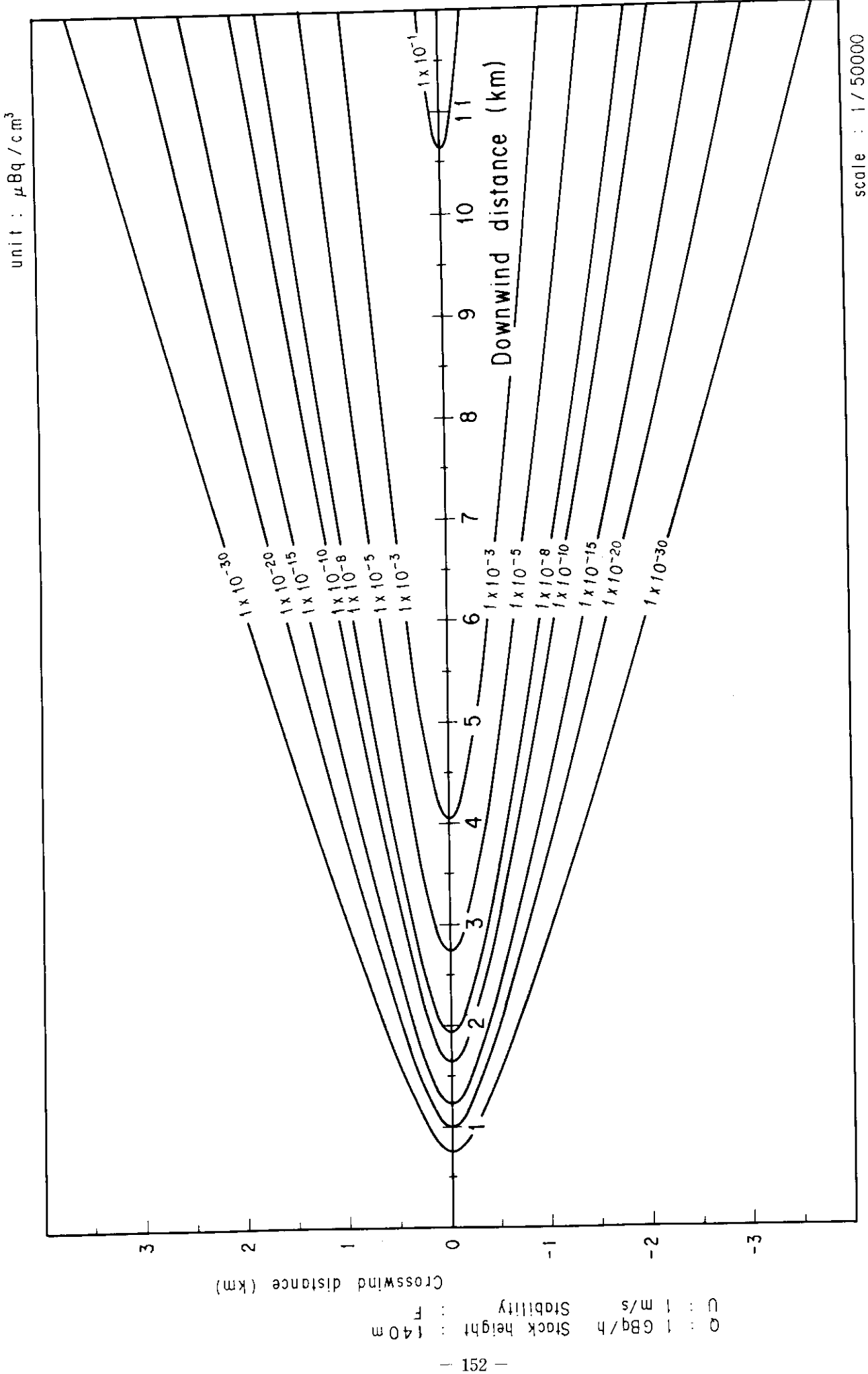


Fig. 2-11-6 (B) Isopleths of surface air concentration

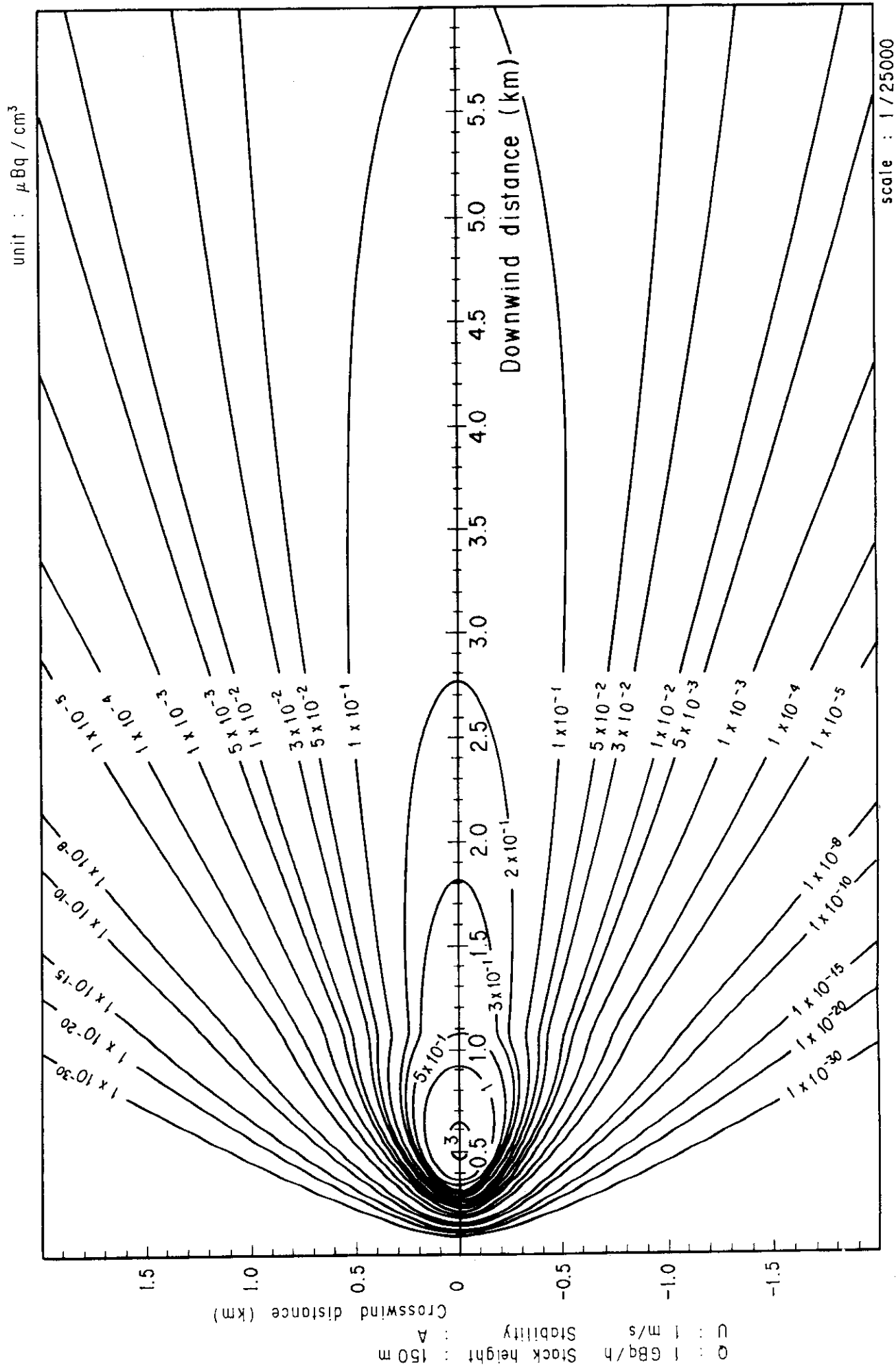


Fig. 2-12-1 (A) Isopleths of surface air concentration

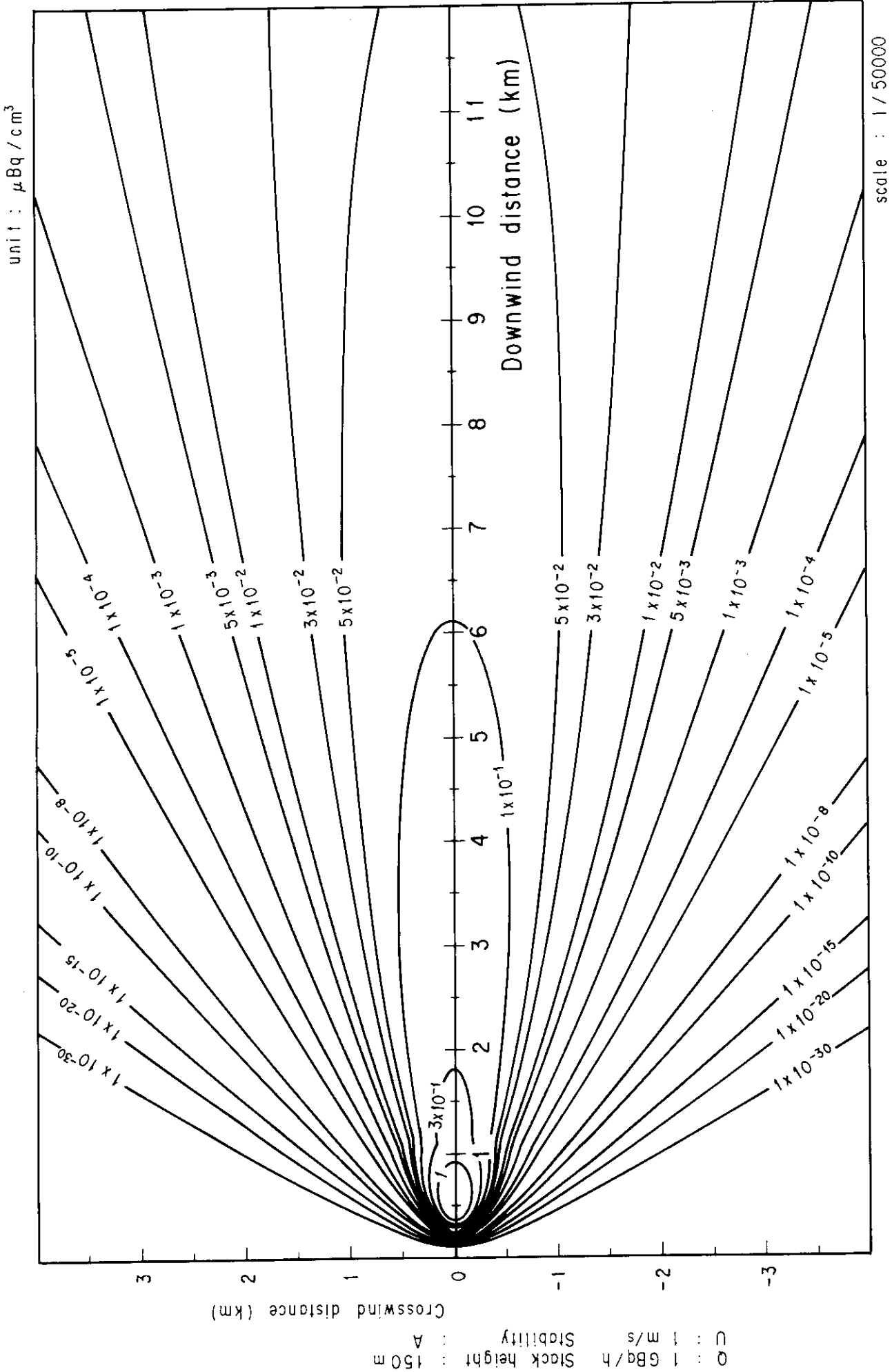


Fig. 2-12-1 (B) Isopleths of surface air concentration

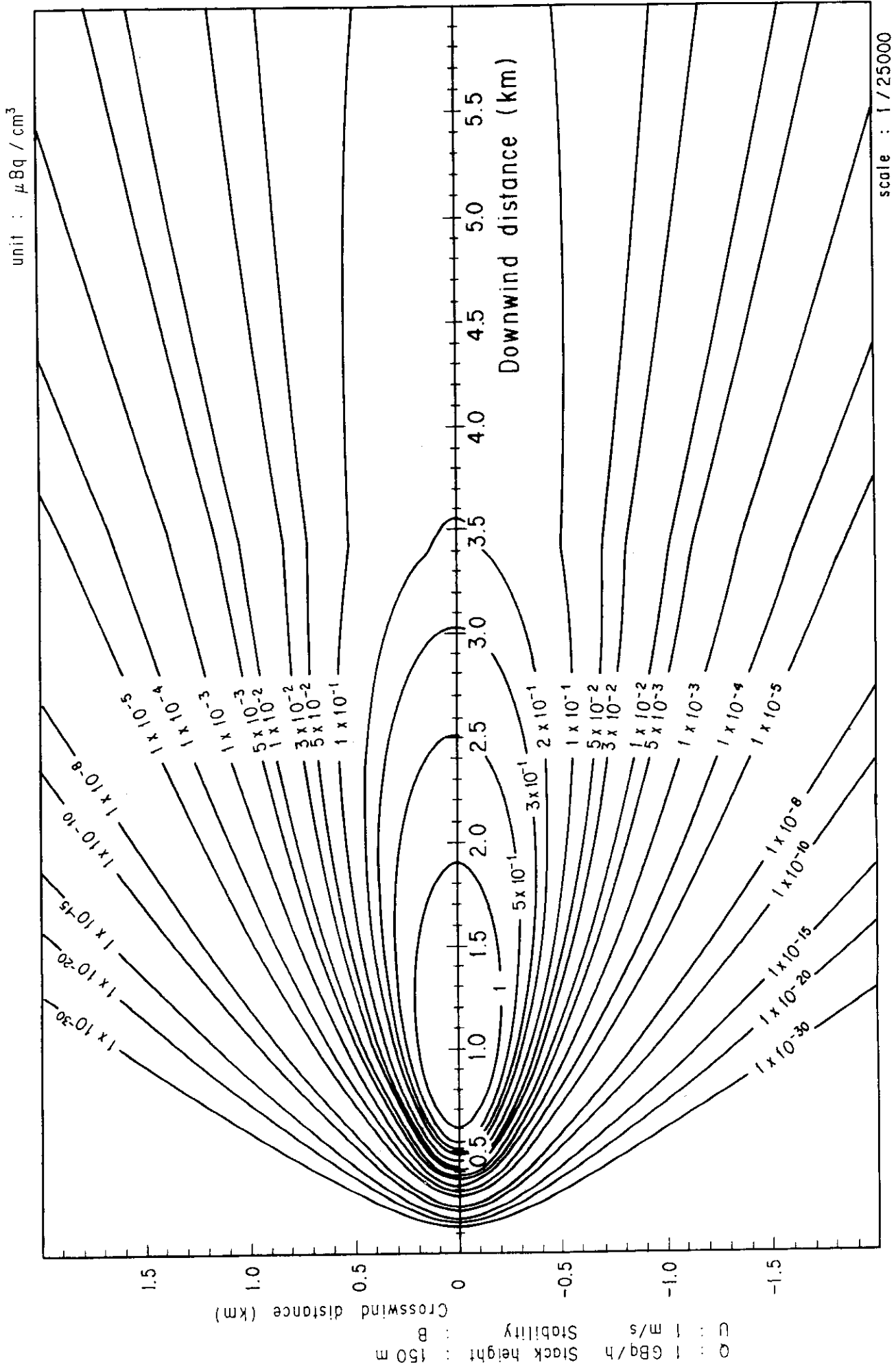


Fig. 2-12-2 (A) Isopleths of surface air concentration

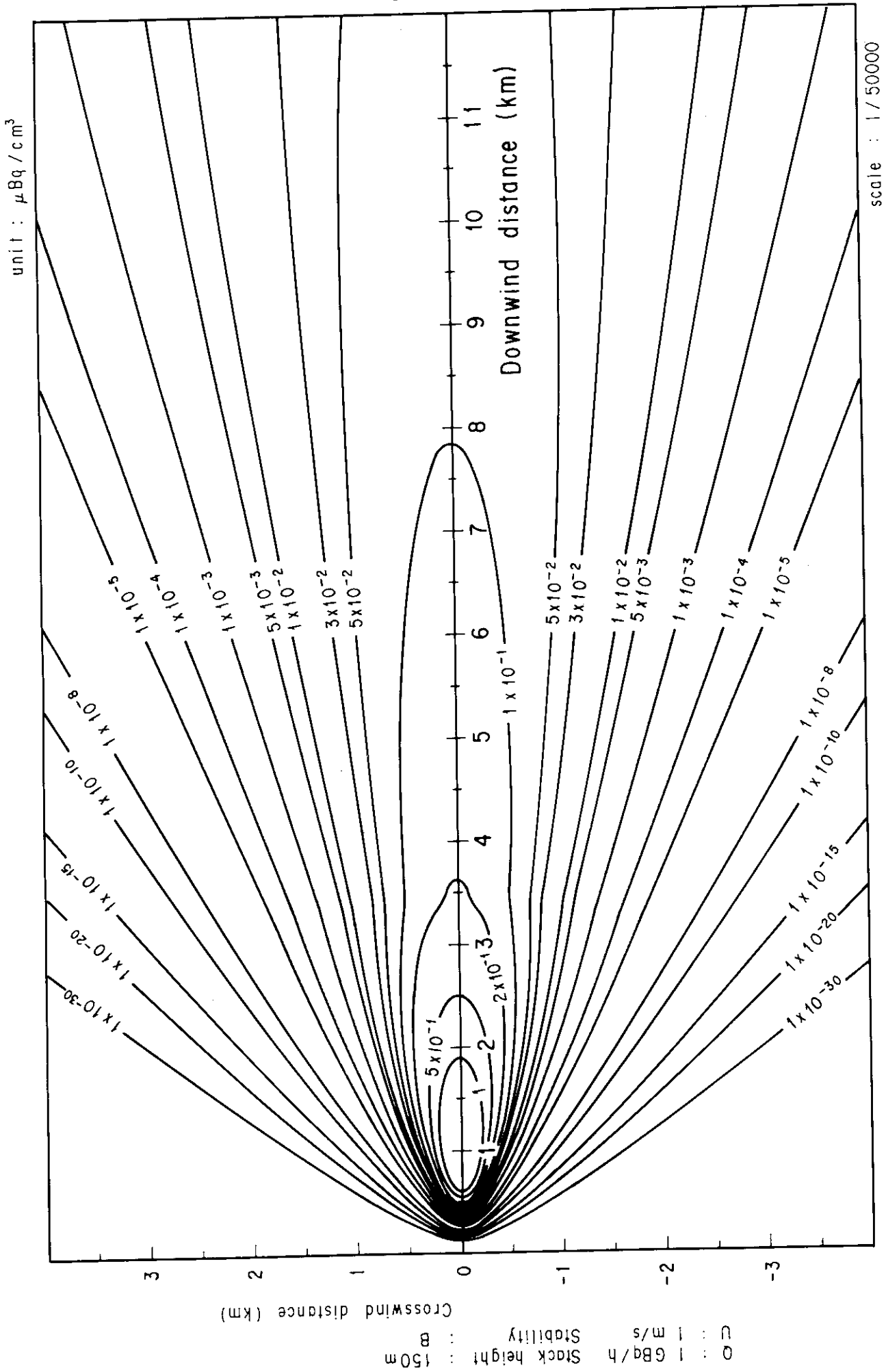


Fig. 2-12-2 (B) Isopleths of surface air concentration

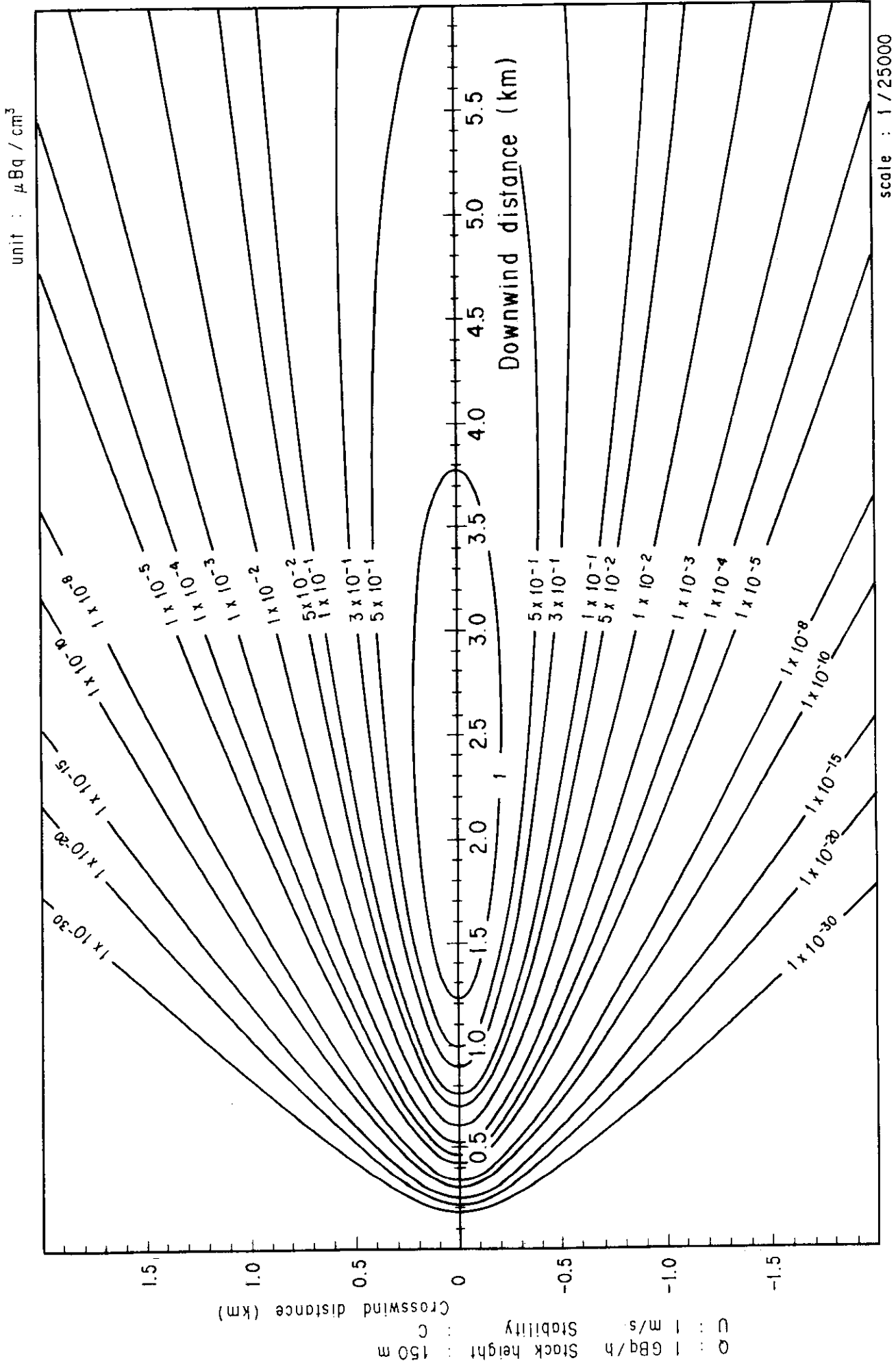


Fig. 2-12-3 (A) Isopleths of surface air concentration

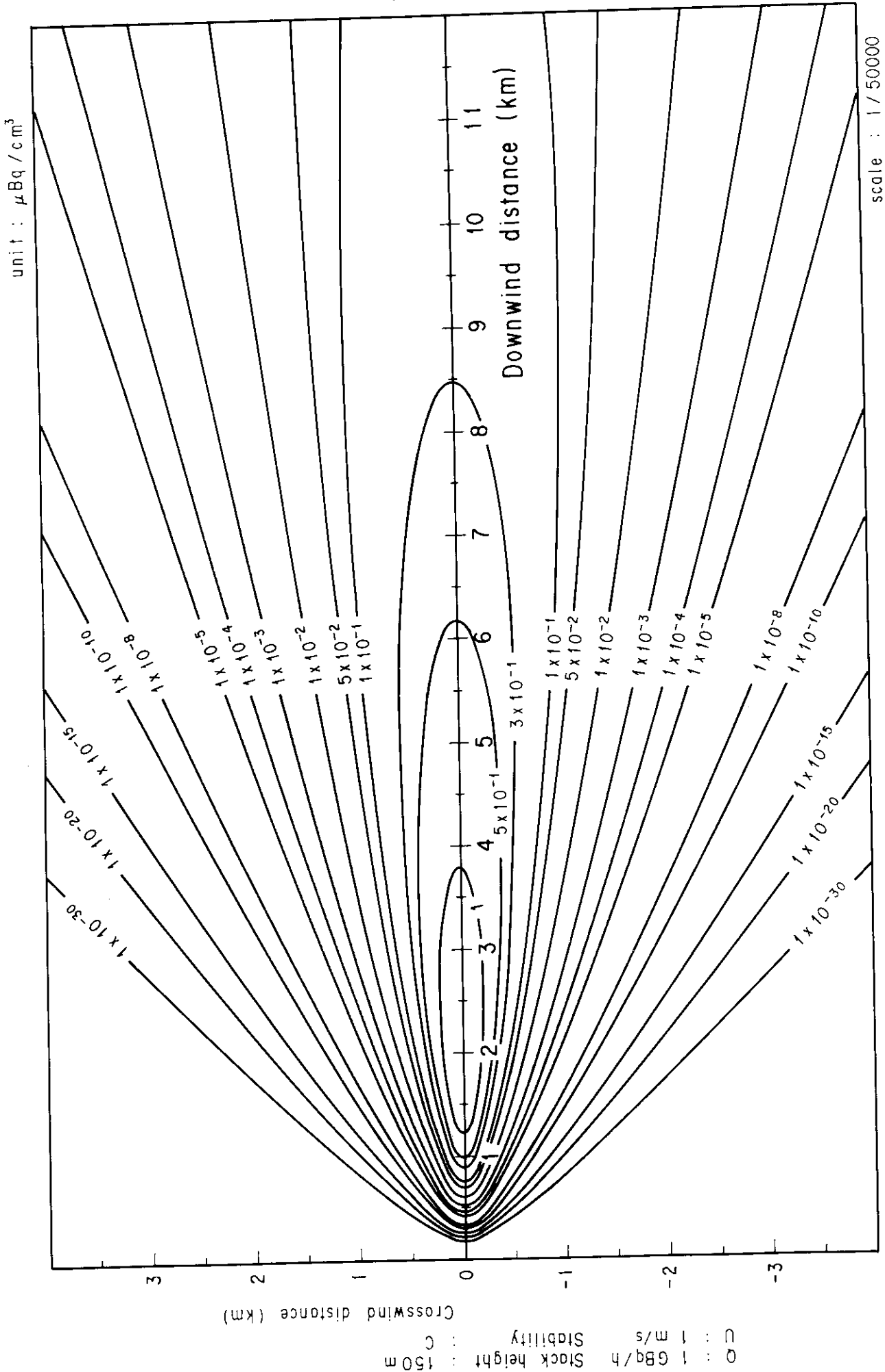


Fig. 2-12-3(B) Isopleths of surface air concentration

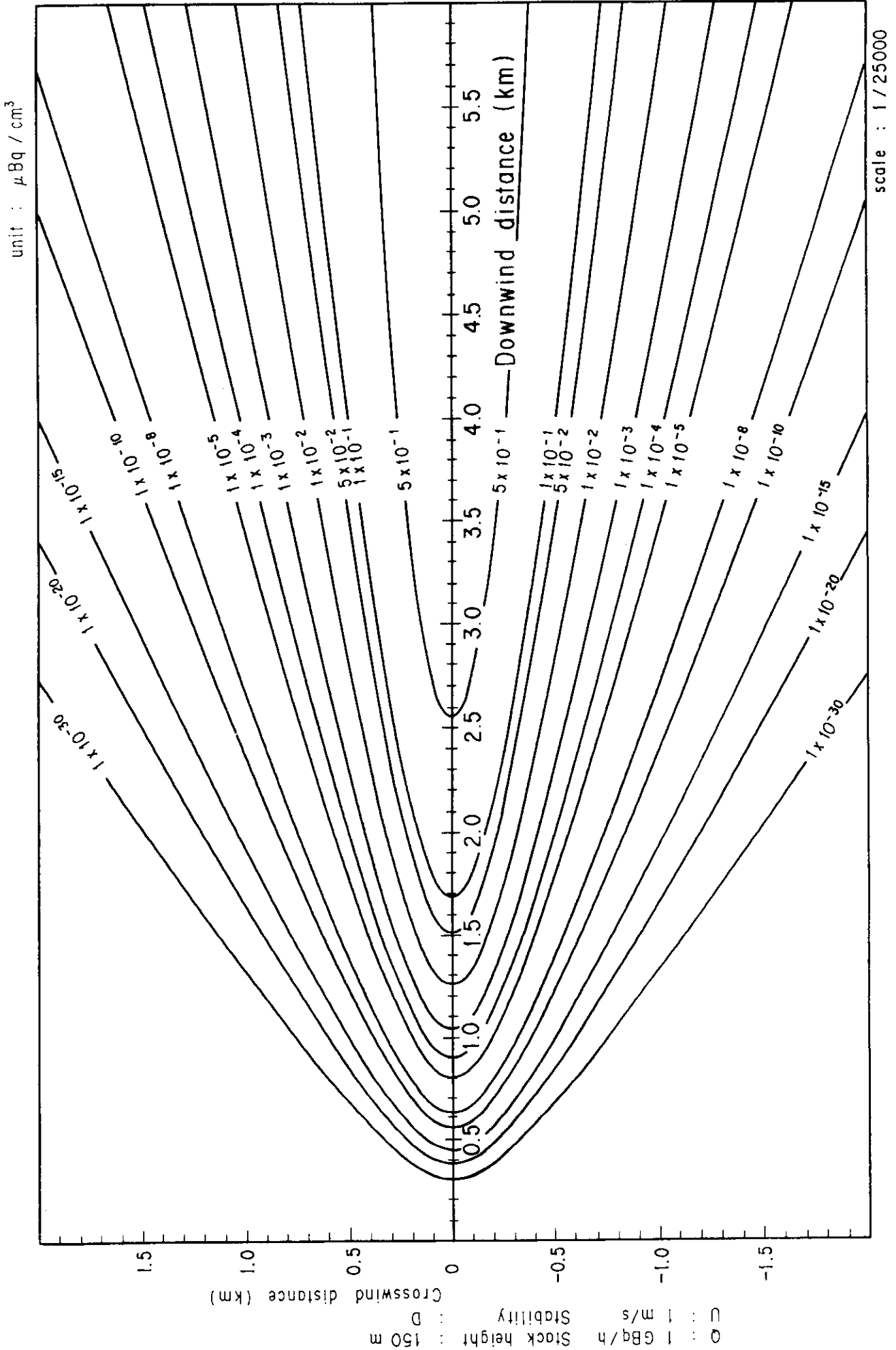


Fig. 2-12-4 (A) Isopleths of surface air concentration

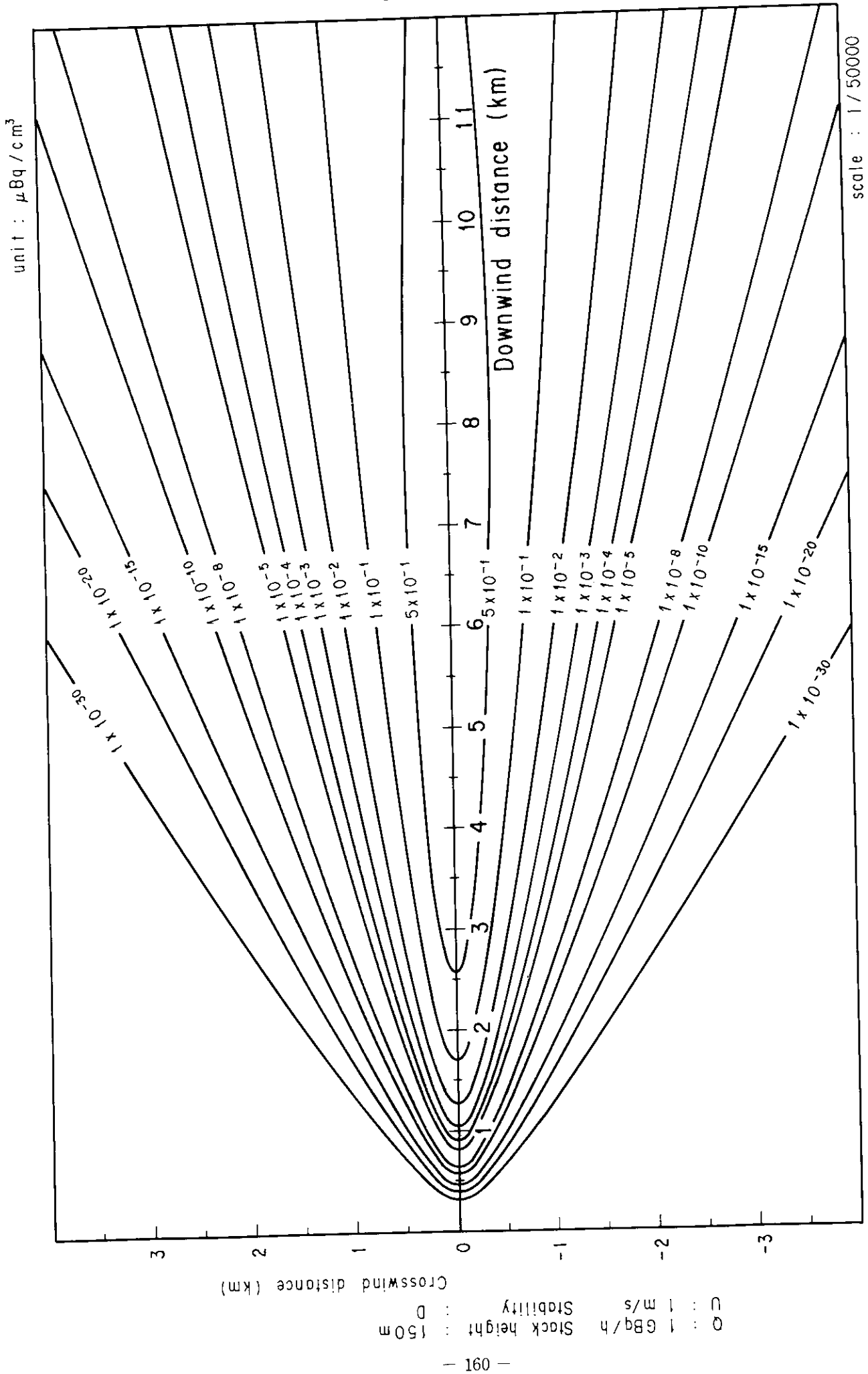


Fig. 2-12-4 (B) Isopleths of surface air concentration

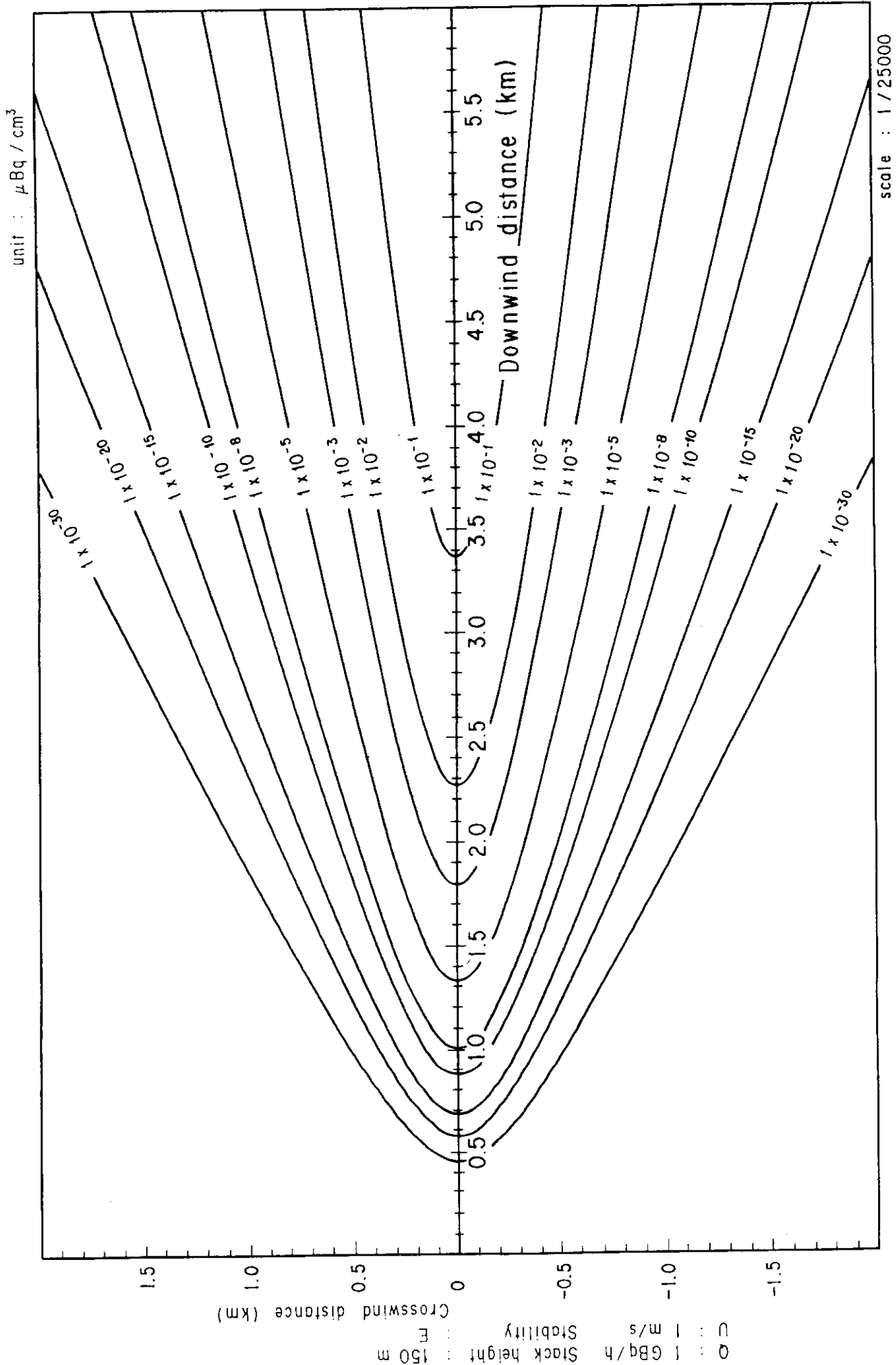


Fig. 2-12-5 (A) Isopleths of surface air concentration

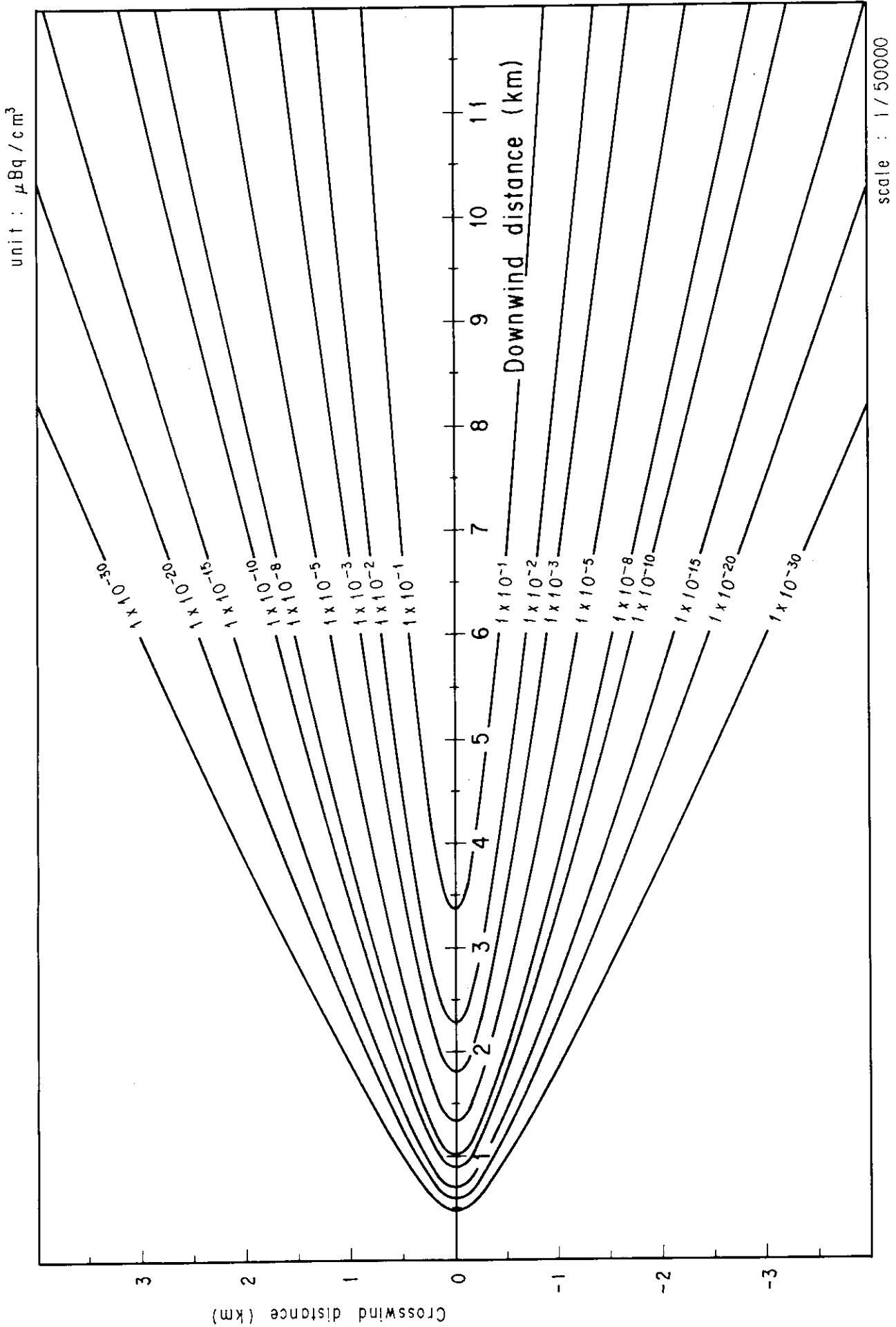


Fig. 2-12-5 (B) Isopleths of surface air concentration

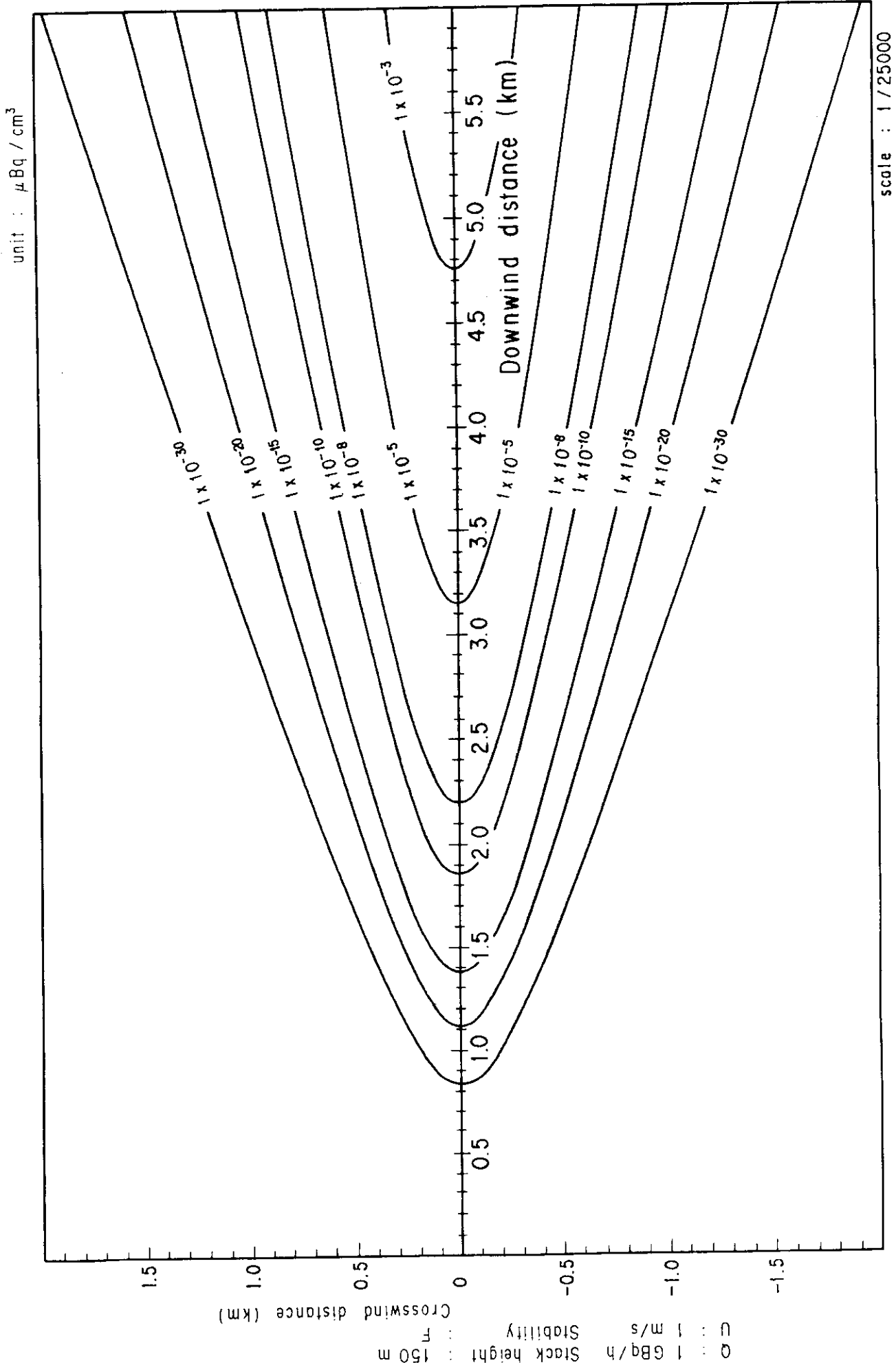
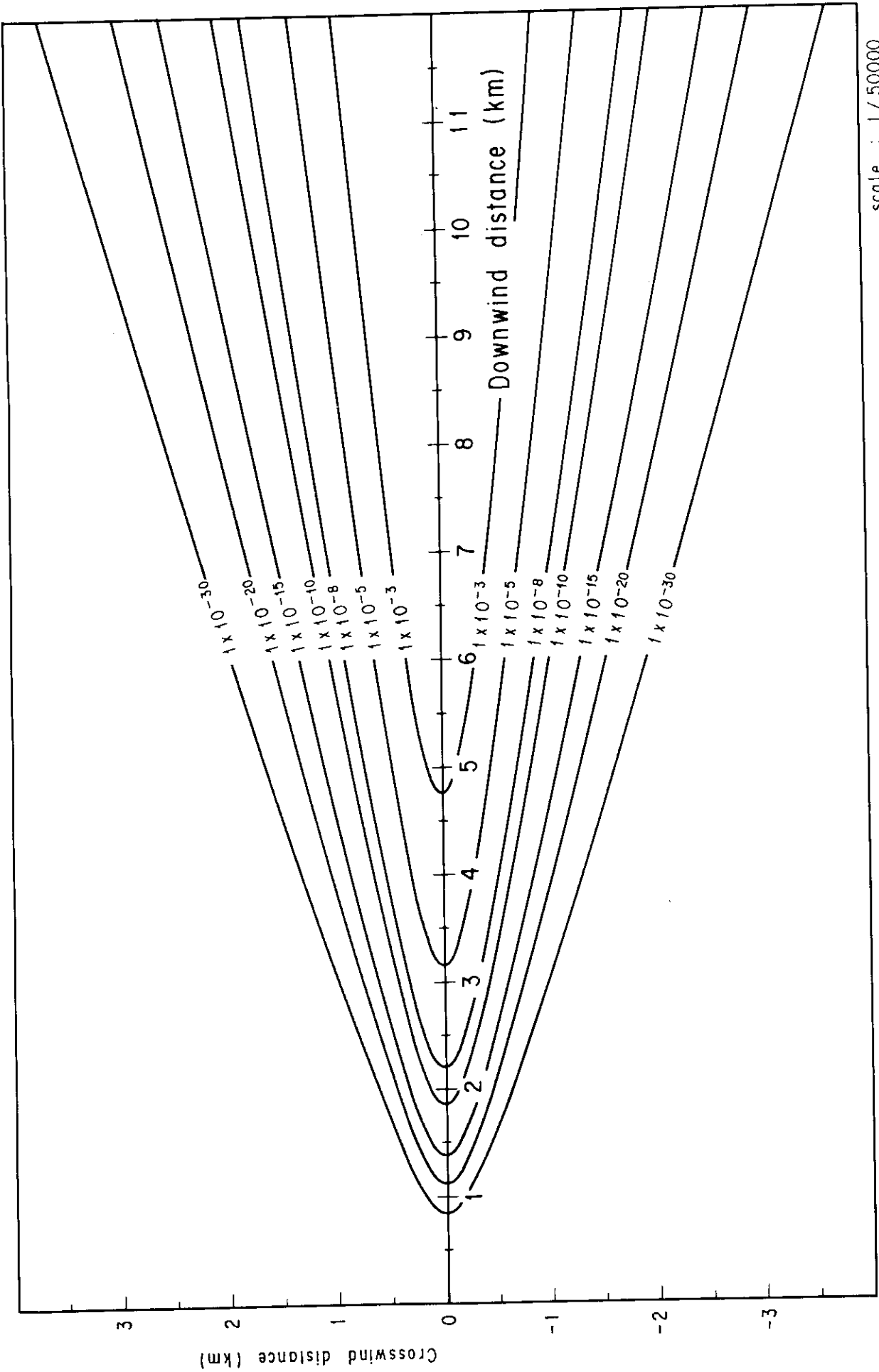


Fig. 2-12-6 (A) Isopleths of surface air concentration

Q : 1 GBq/h
 Stack height : 150 m
 U : 1 m/s
 Stability : F

Crosswind distance (km)

unit : $\mu\text{Bq}/\text{cm}^3$



scale : 1 / 50000

Fig. 2-12-6 (B) Isopleths of surface air concentration

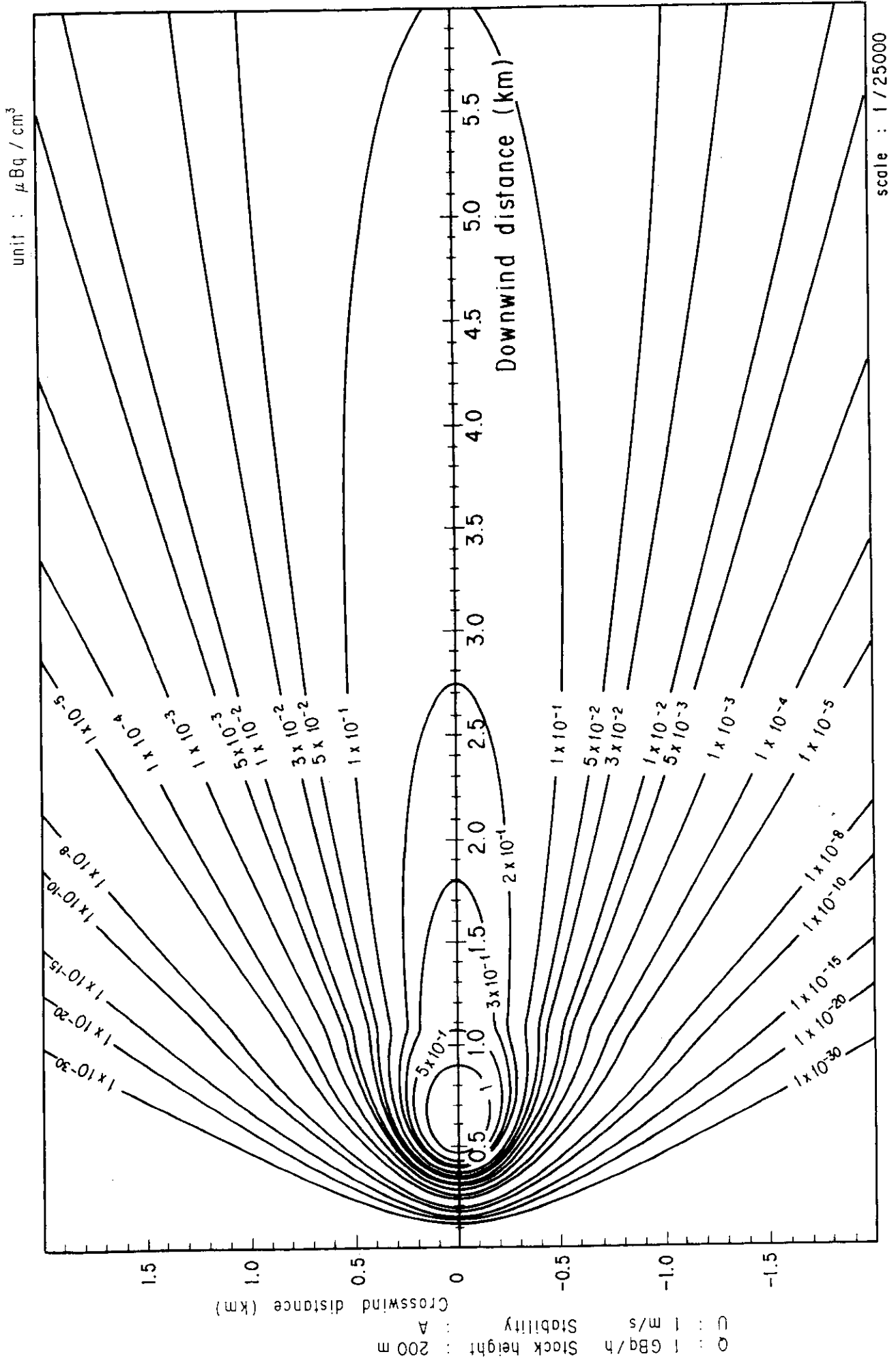


Fig. 2-13-1 (A) Isopleths of surface air concentration

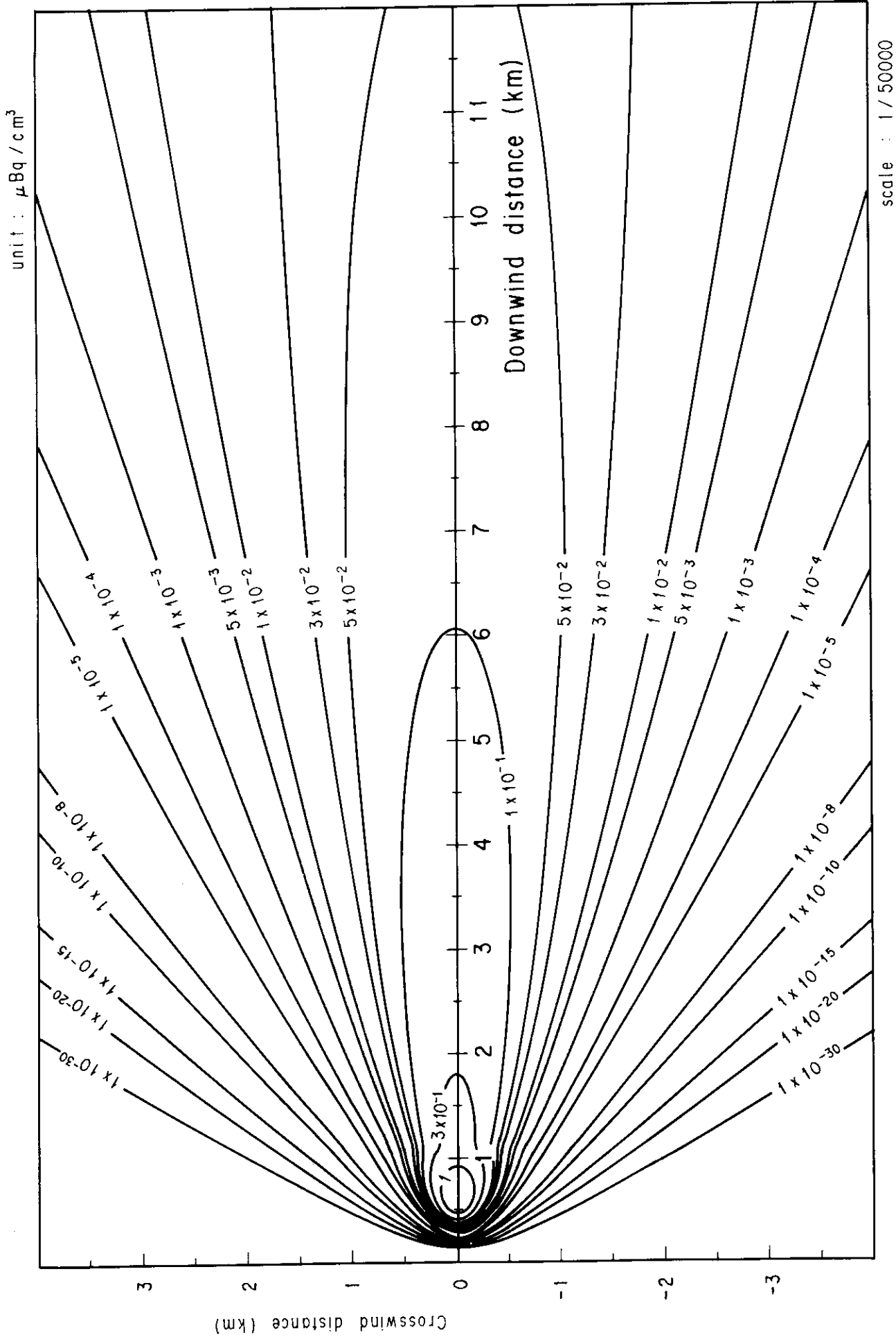
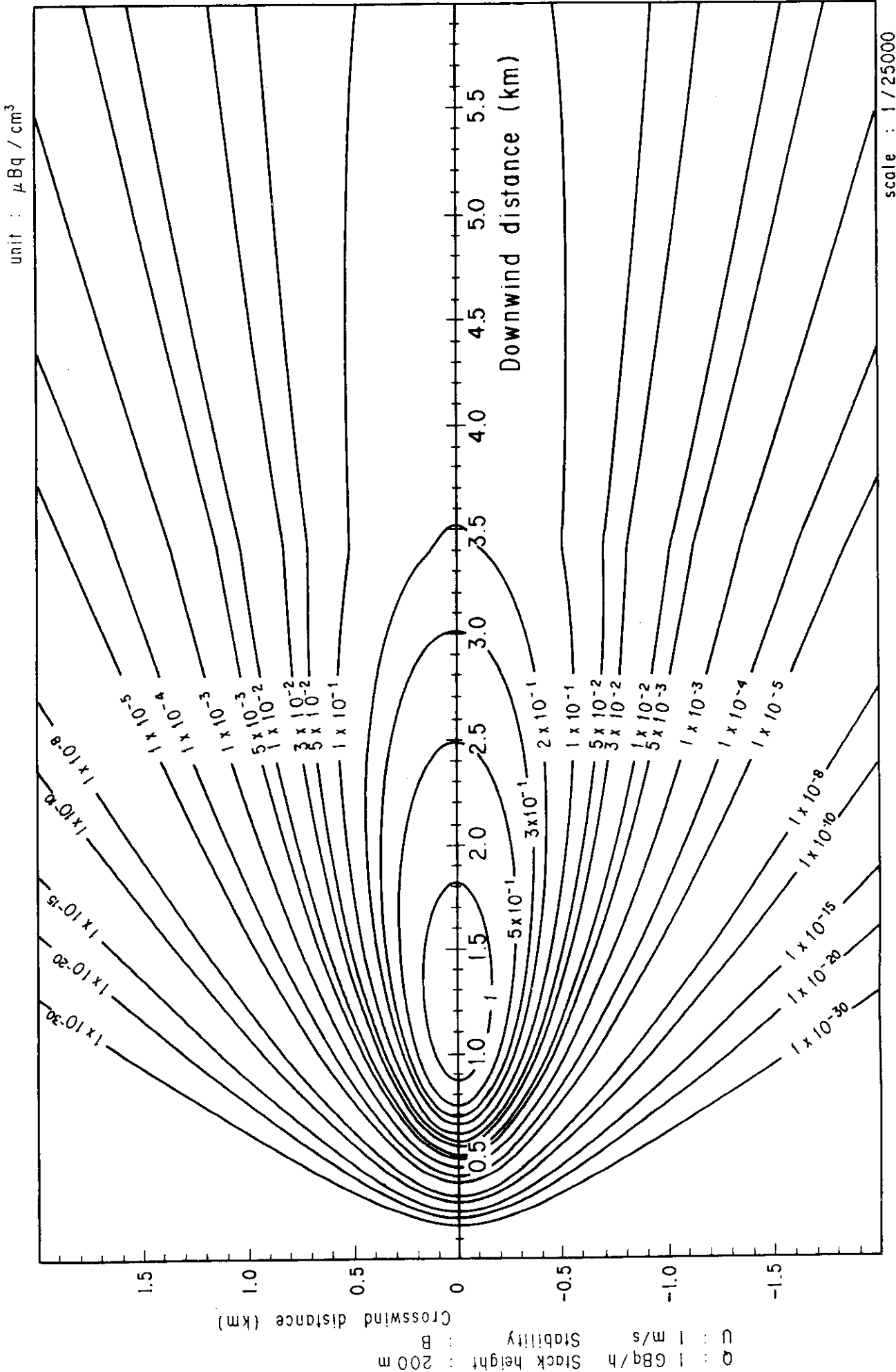


Fig. 2-13-1 (B) Isopleths of surface air concentration



scale : 1/25000

Fig. 2-13-2 (A) Isopleths of surface air concentration

$Q : 1 \text{ GBq/h}$
 Stack height : 200 m
 Stability : B
 $U : 1 \text{ m/s}$
 Crosswind distance (km)

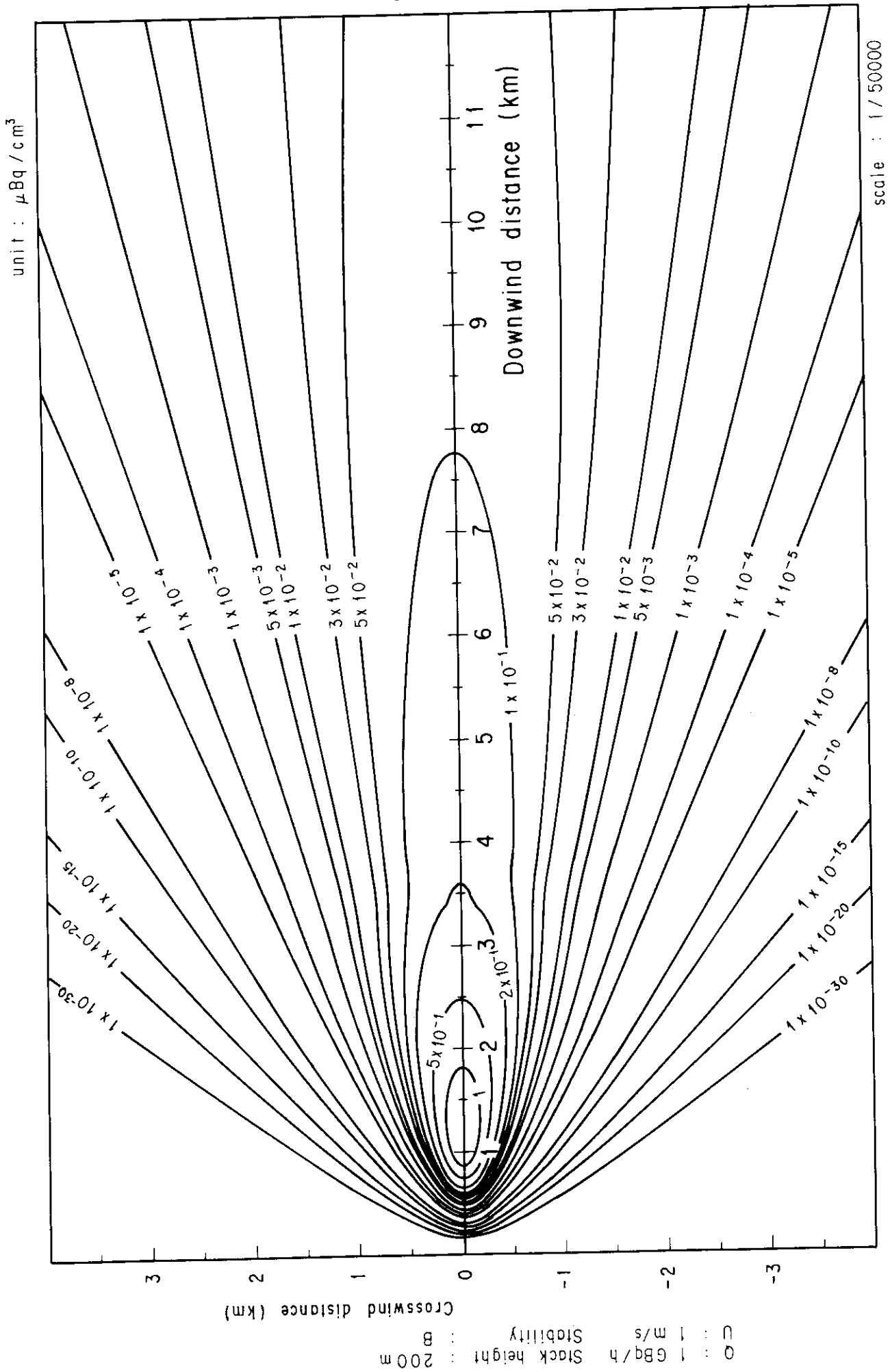


Fig. 2-13-2 (B) Isopleths of surface air concentration

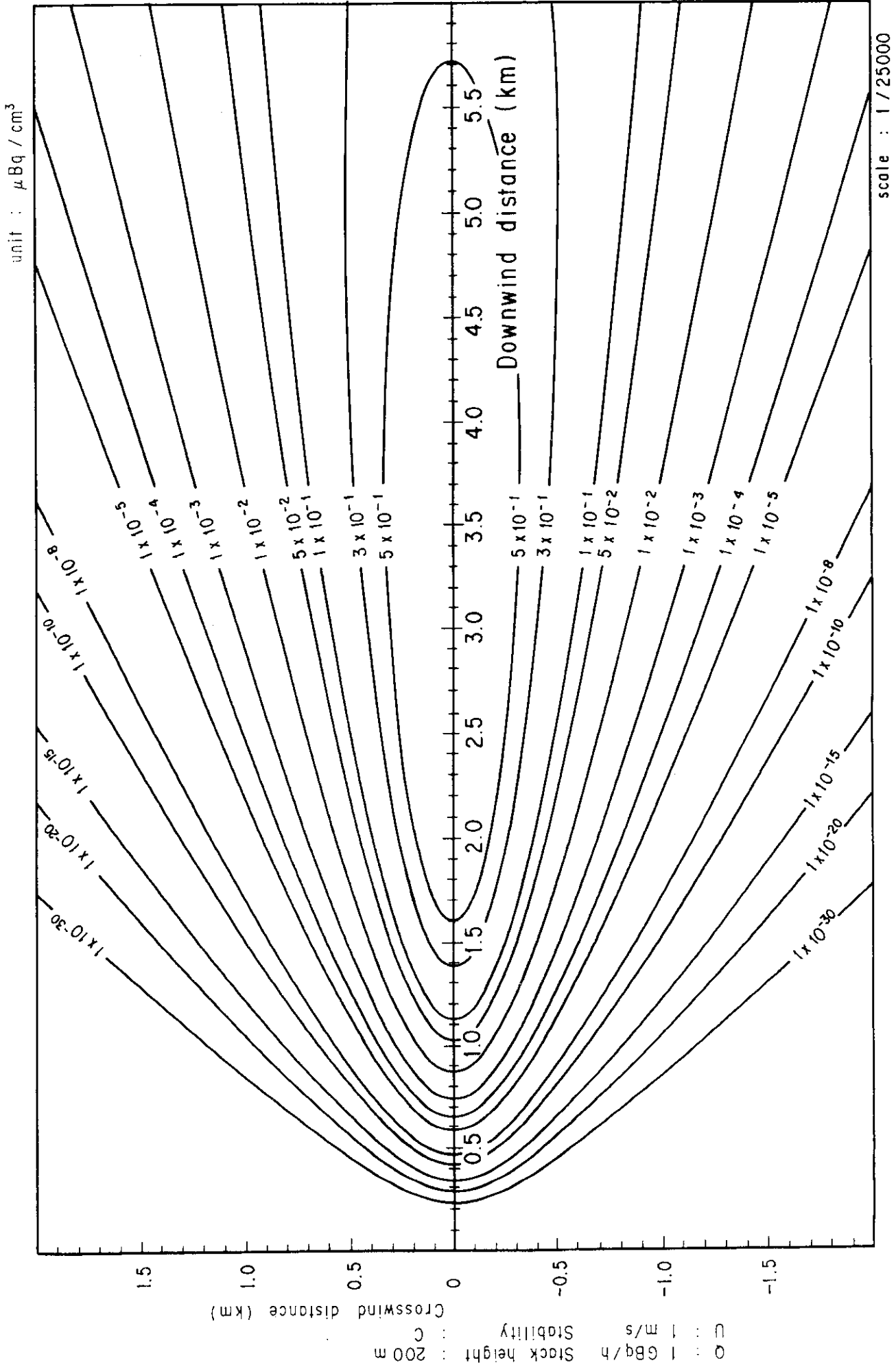


Fig. 2-13-3 (A) Isopleths of surface air concentration

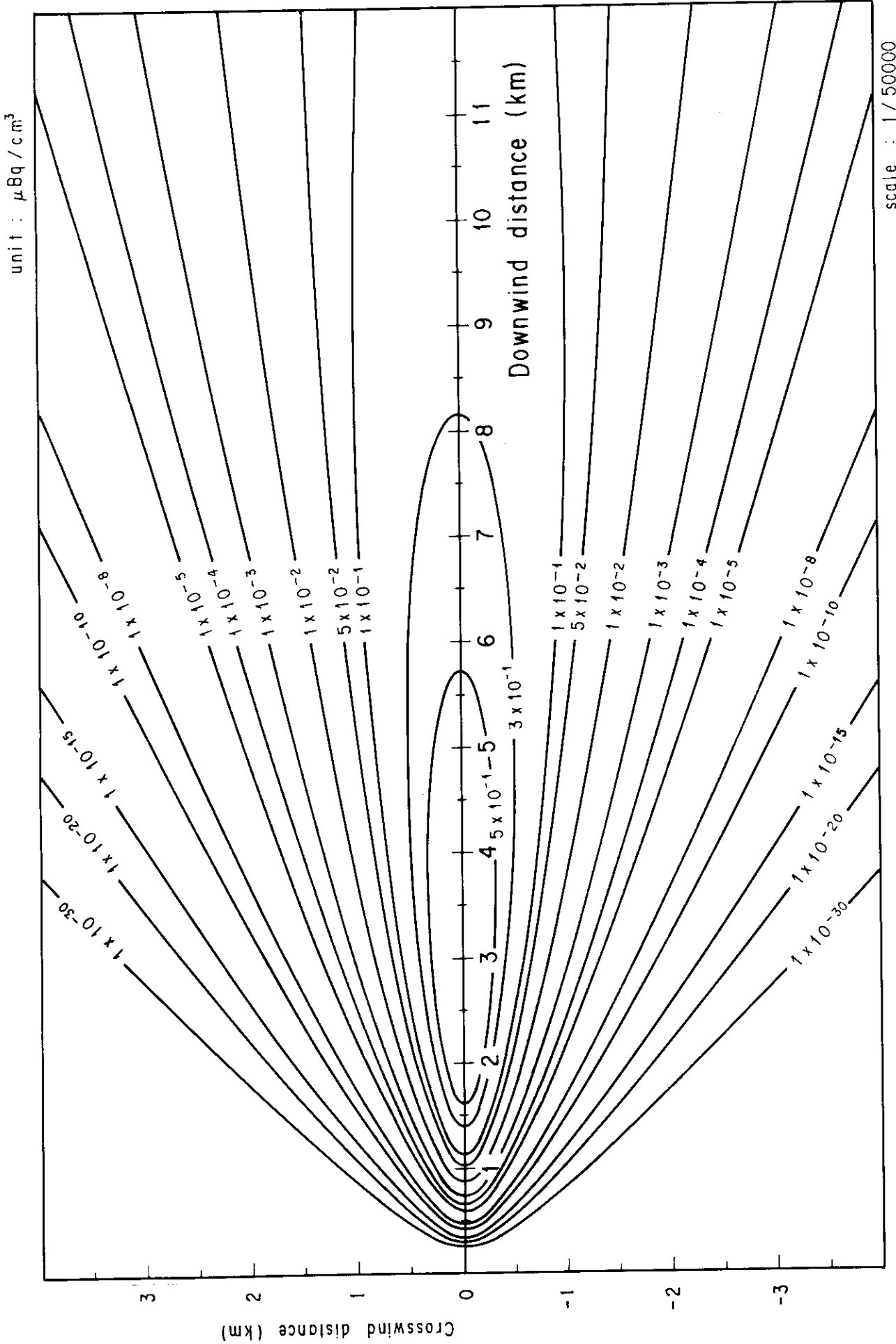


Fig.2-13-3 (B) Isopleths of surface air concentration

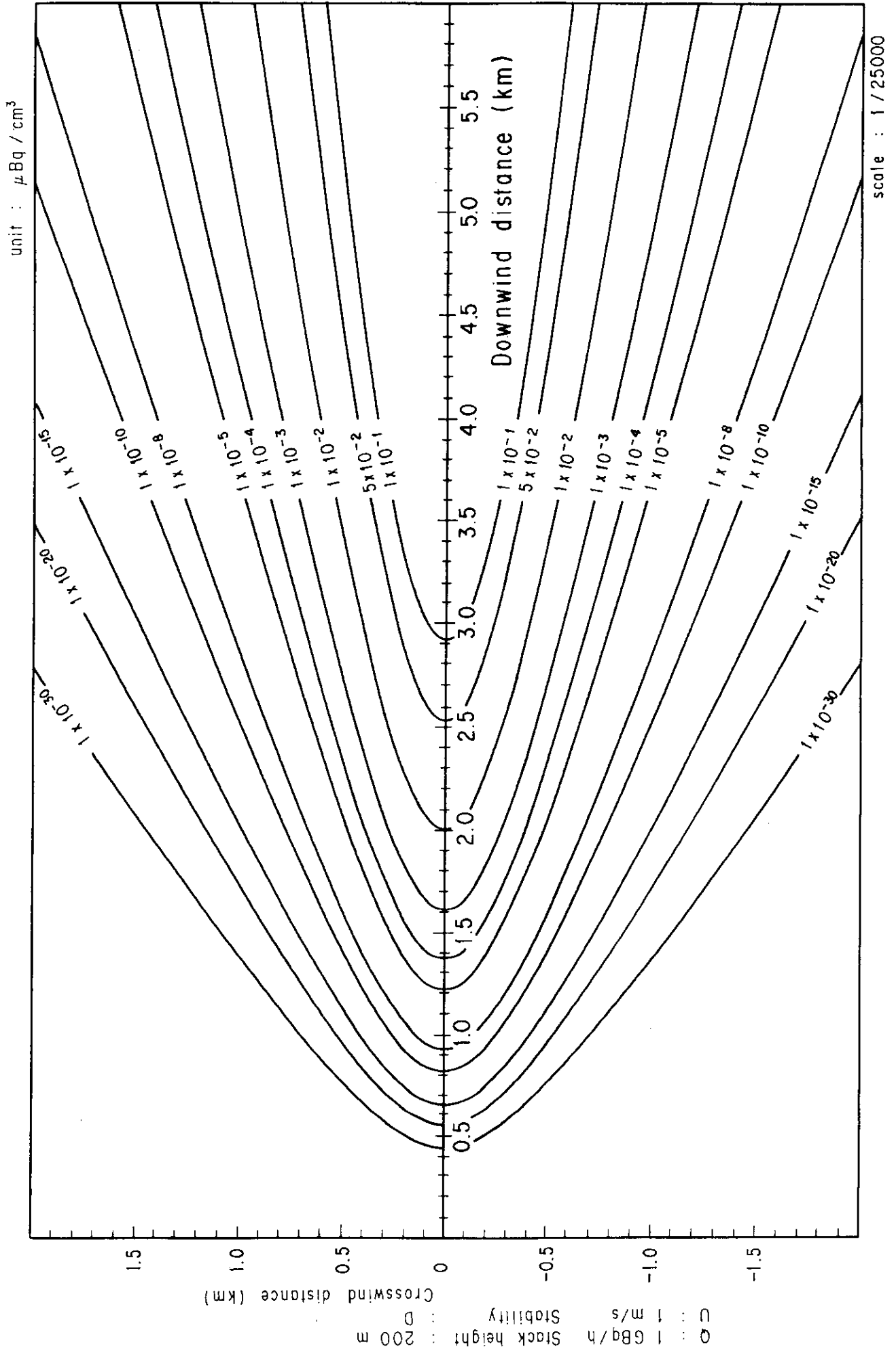


Fig. 2-13-4 (A) Isopleths of surface air concentration

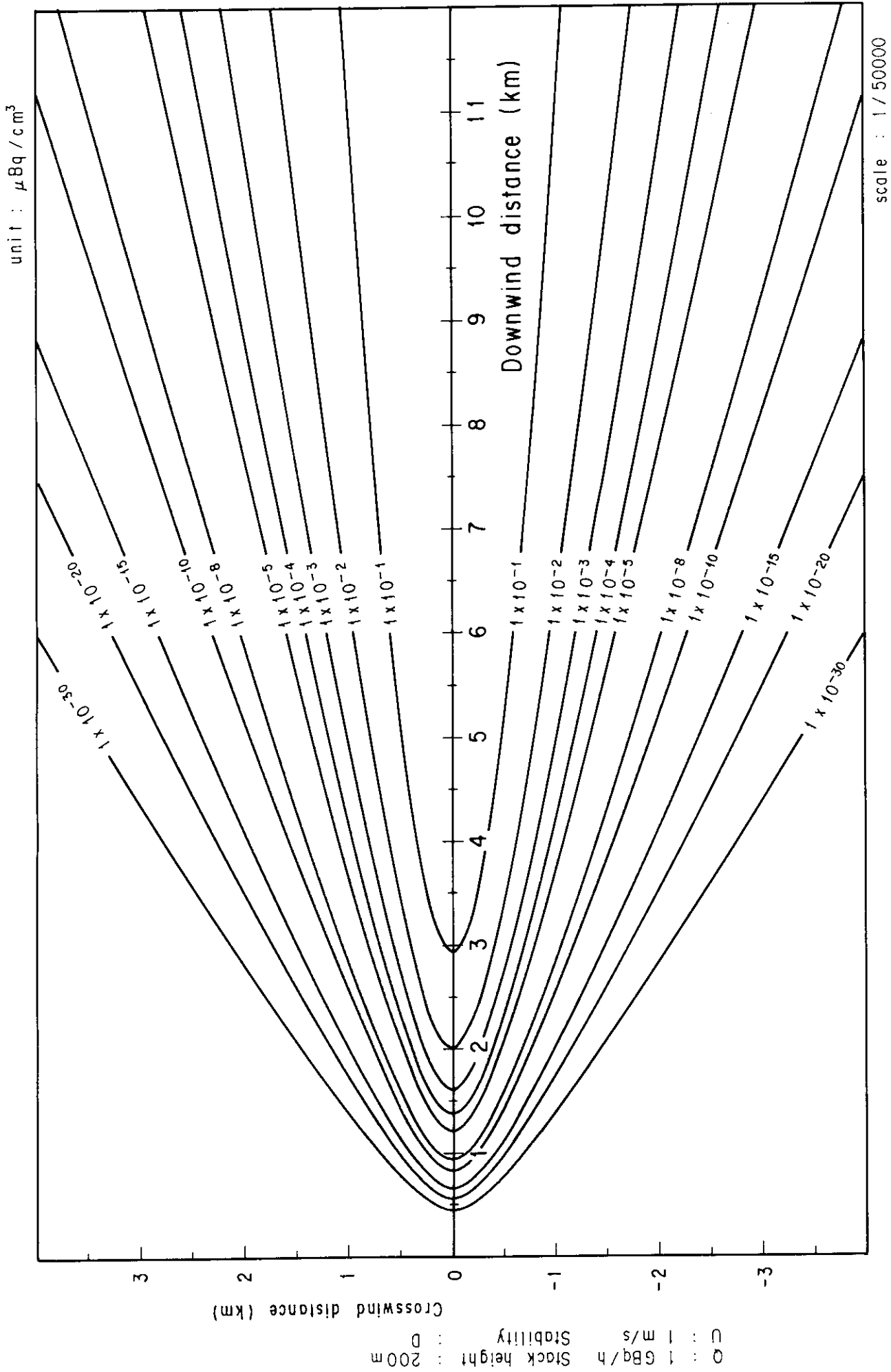


Fig. 2-13-4 (B) Isopleths of surface air concentration

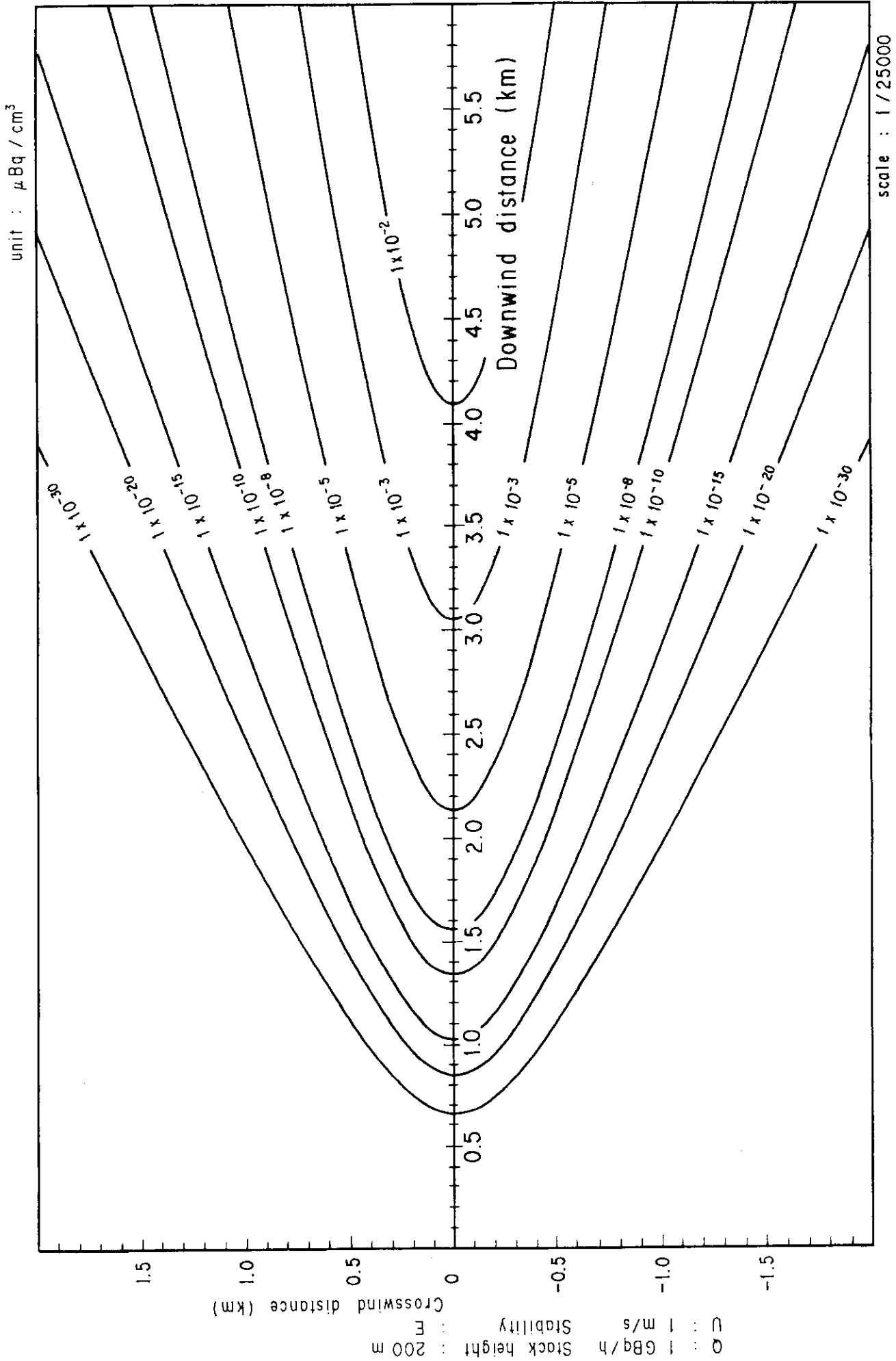


Fig. 2-13-5 (A) Isopleths of surface air concentration

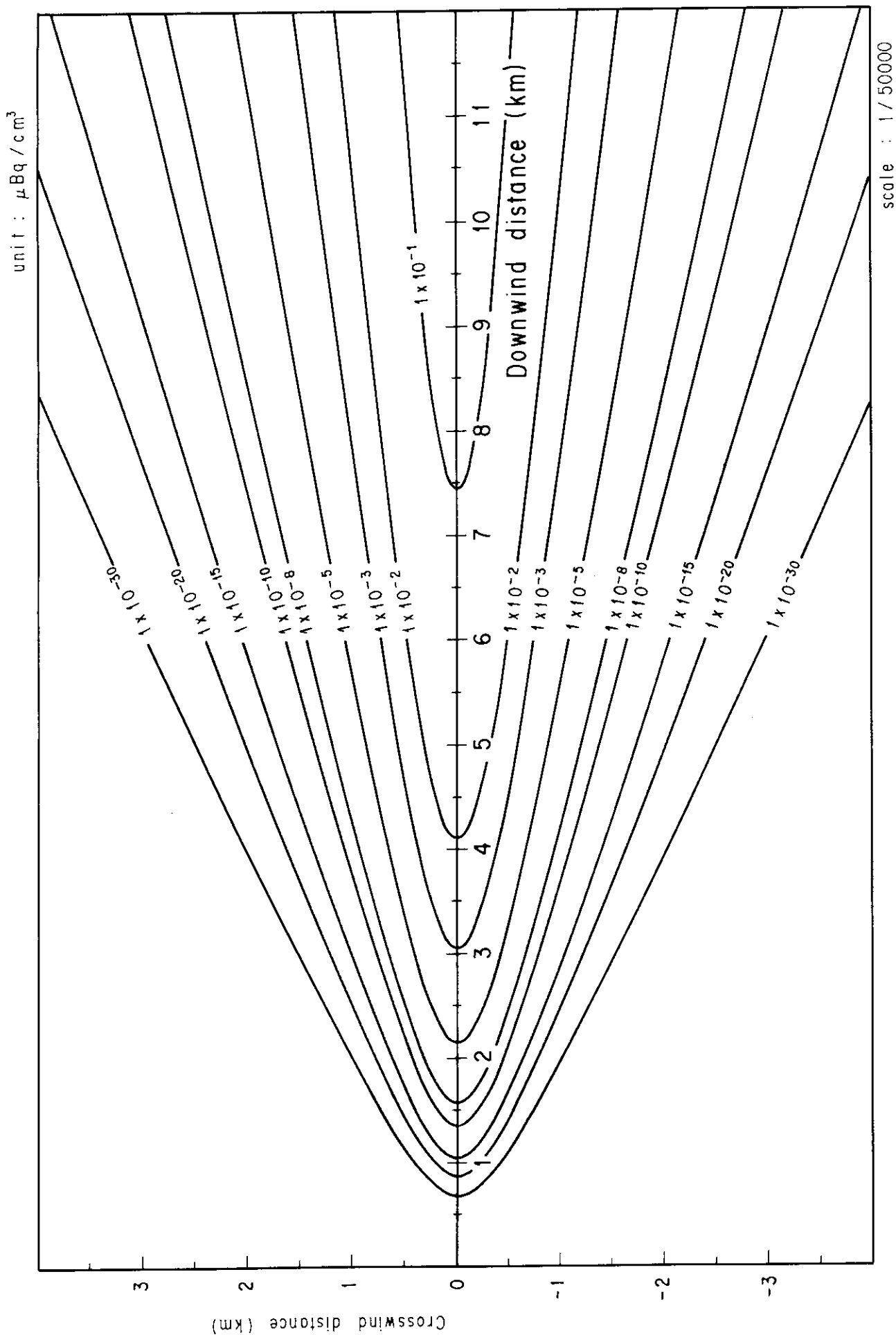


Fig. 2-13-5 (B) Isopleths of surface air concentration

Q : 1 GBq/h
 Stack height : 200 m
 Stability : E
 U : 1 m/s

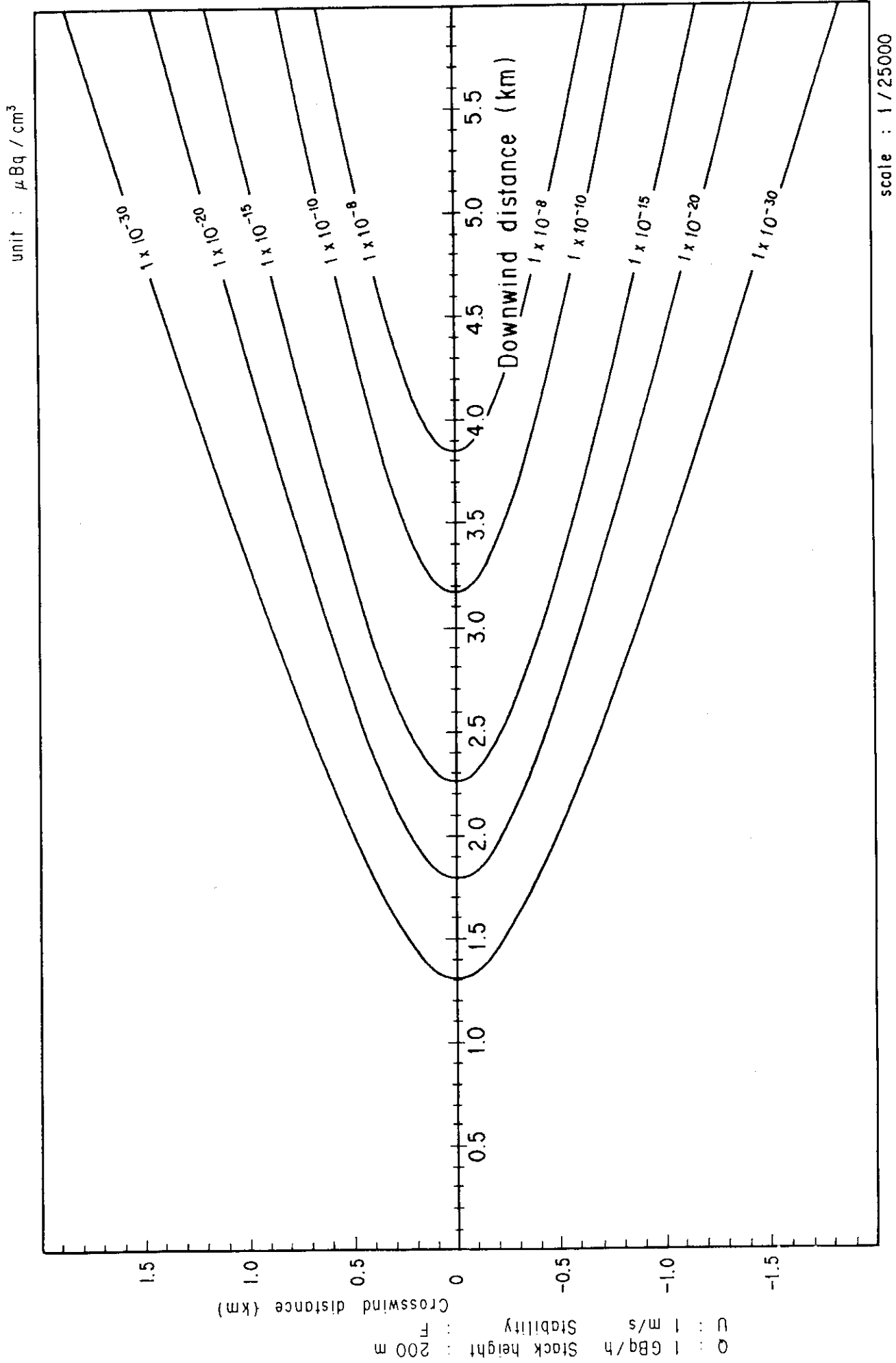
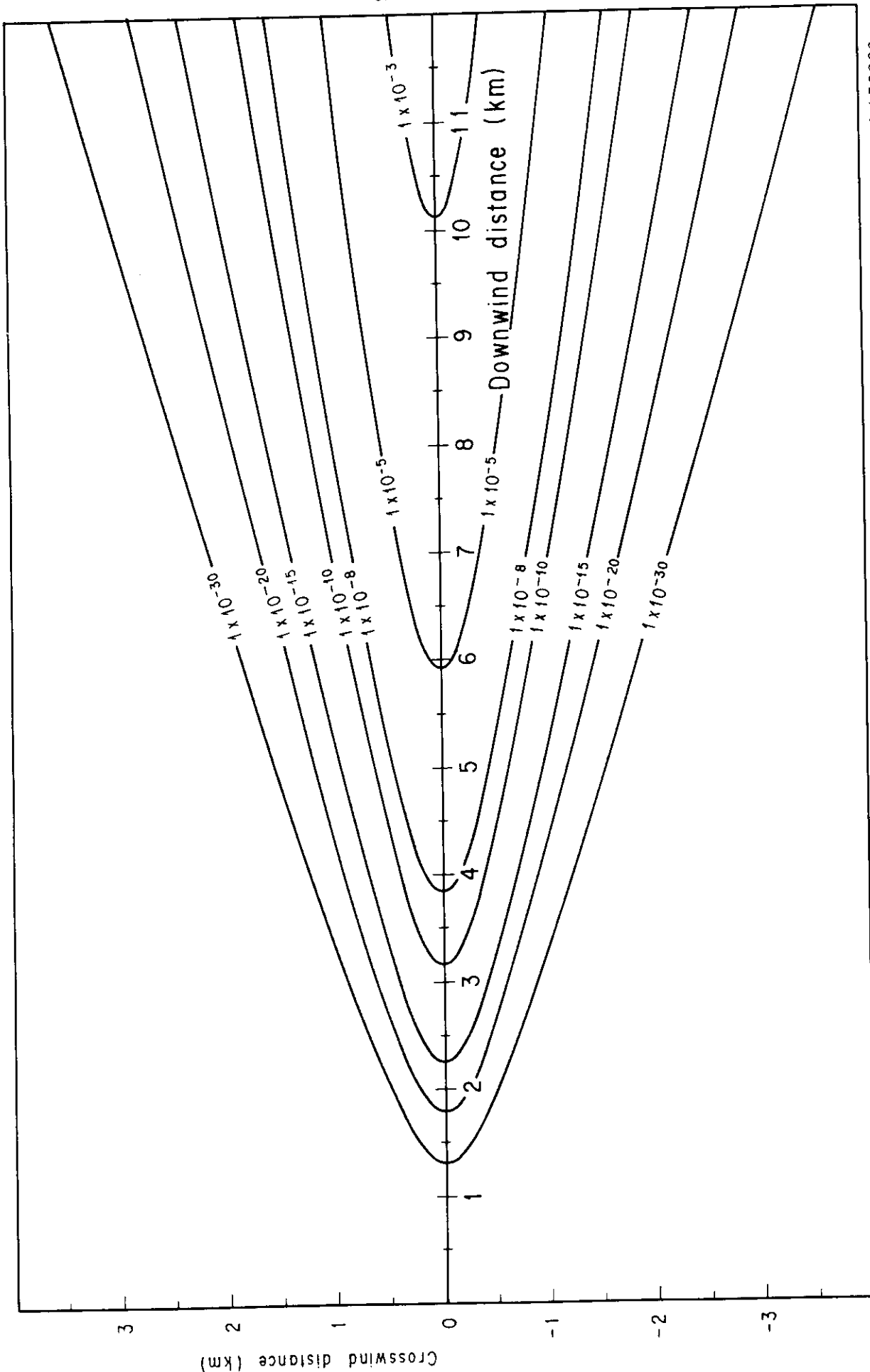


Fig. 2-13-6 (A) Isopleths of surface air concentration

unit : $\mu\text{Bq}/\text{cm}^3$

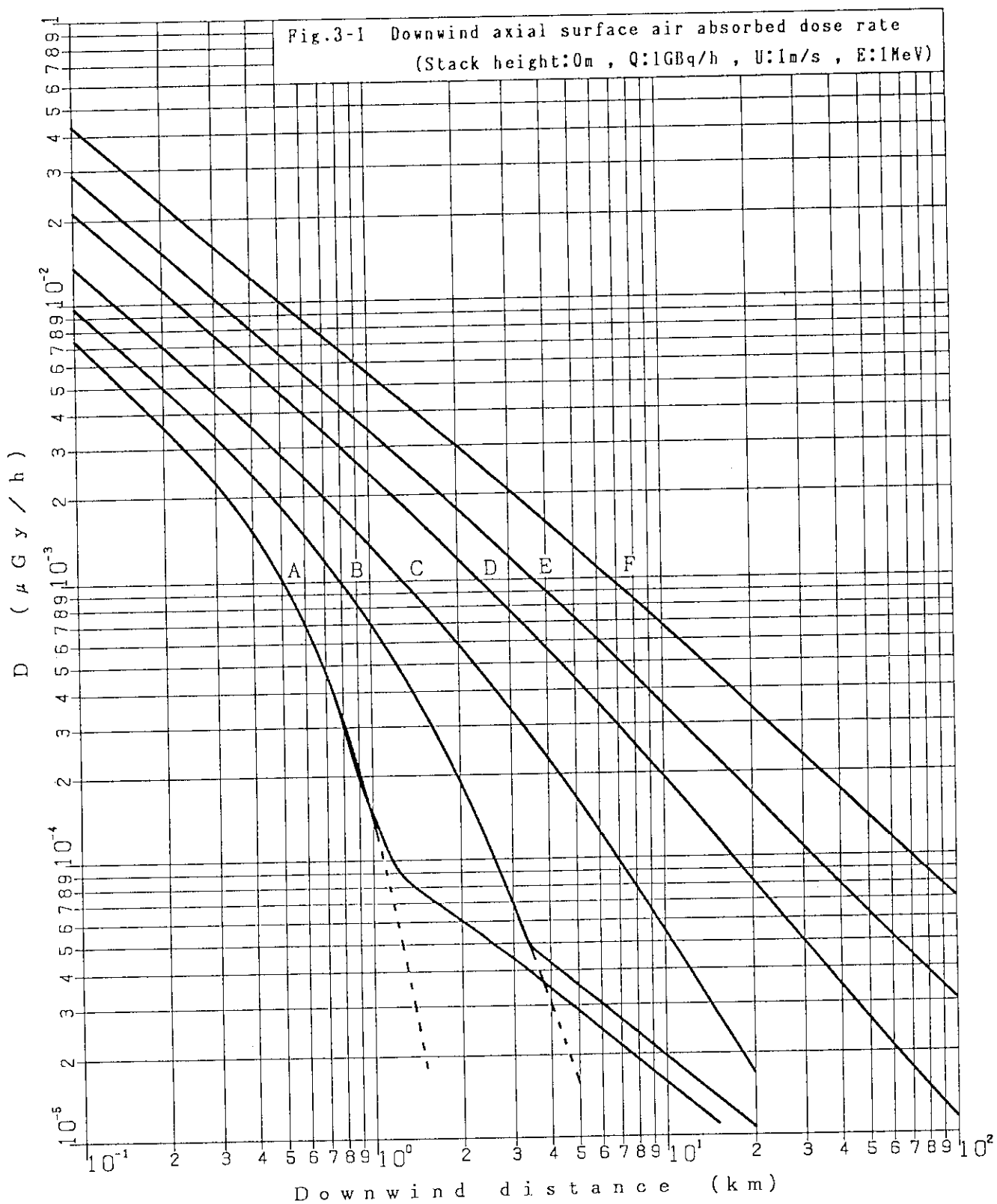


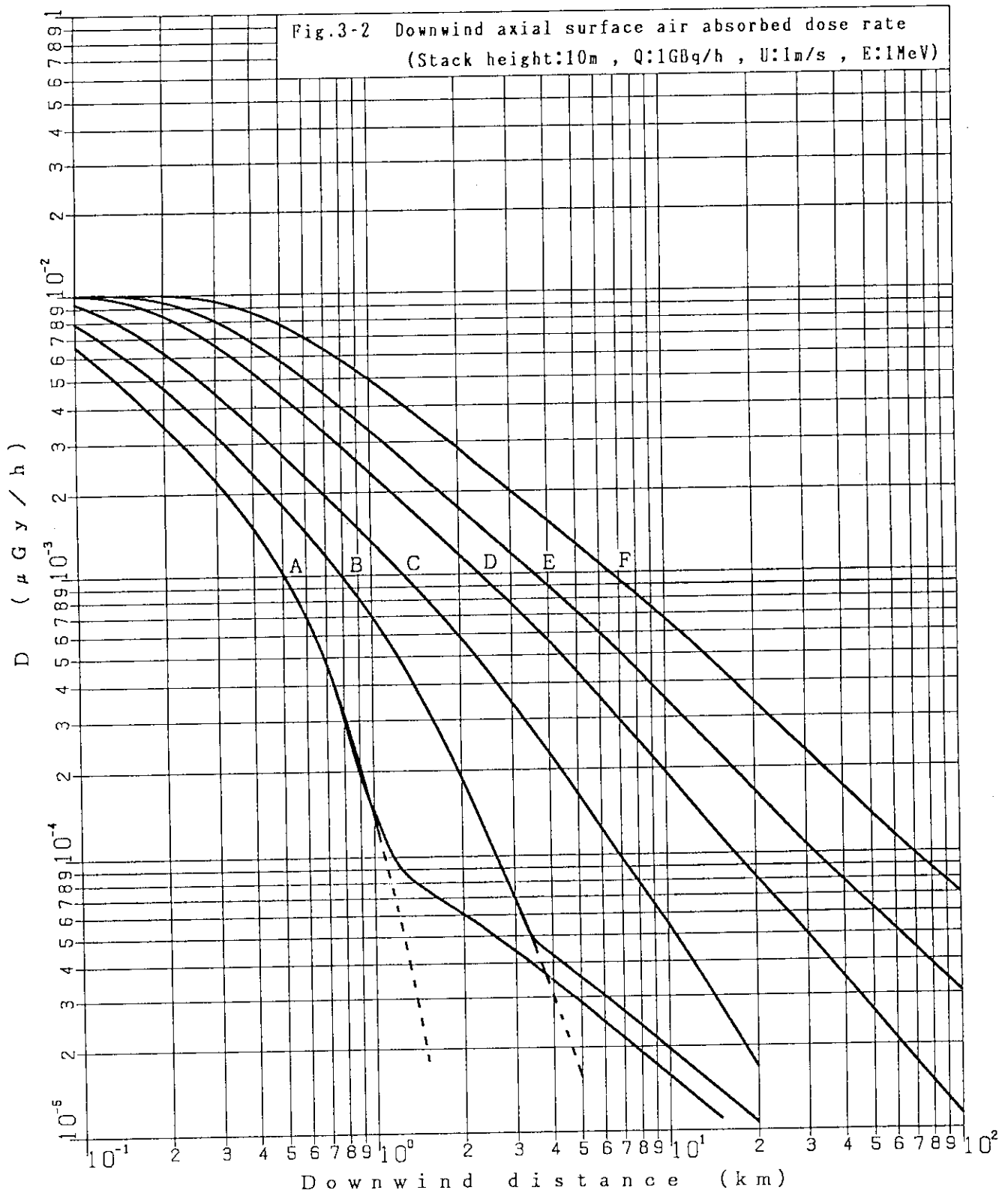
scale : 1/50000

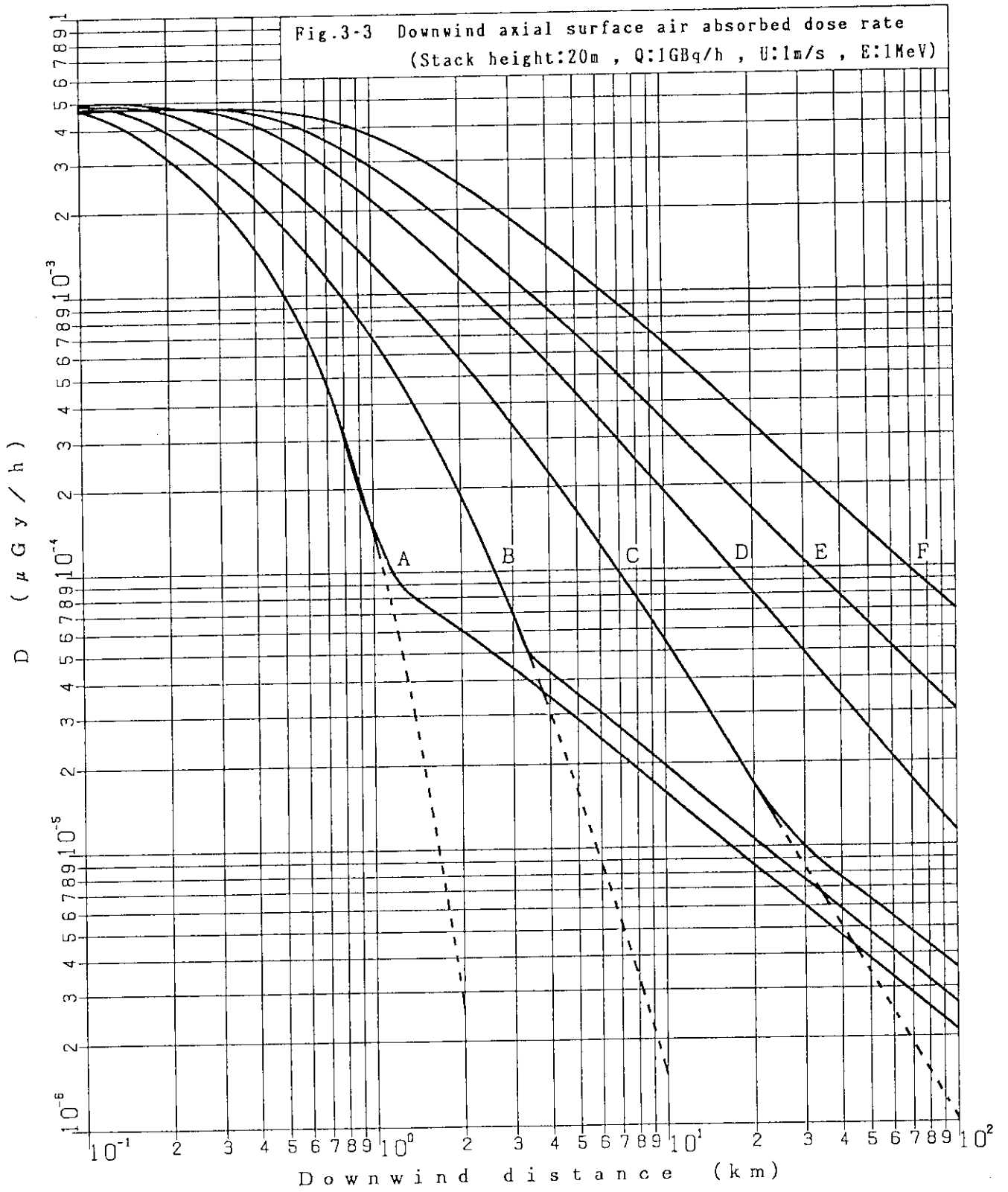
Fig.2-13-6 (B) Isopleths of surface air concentration

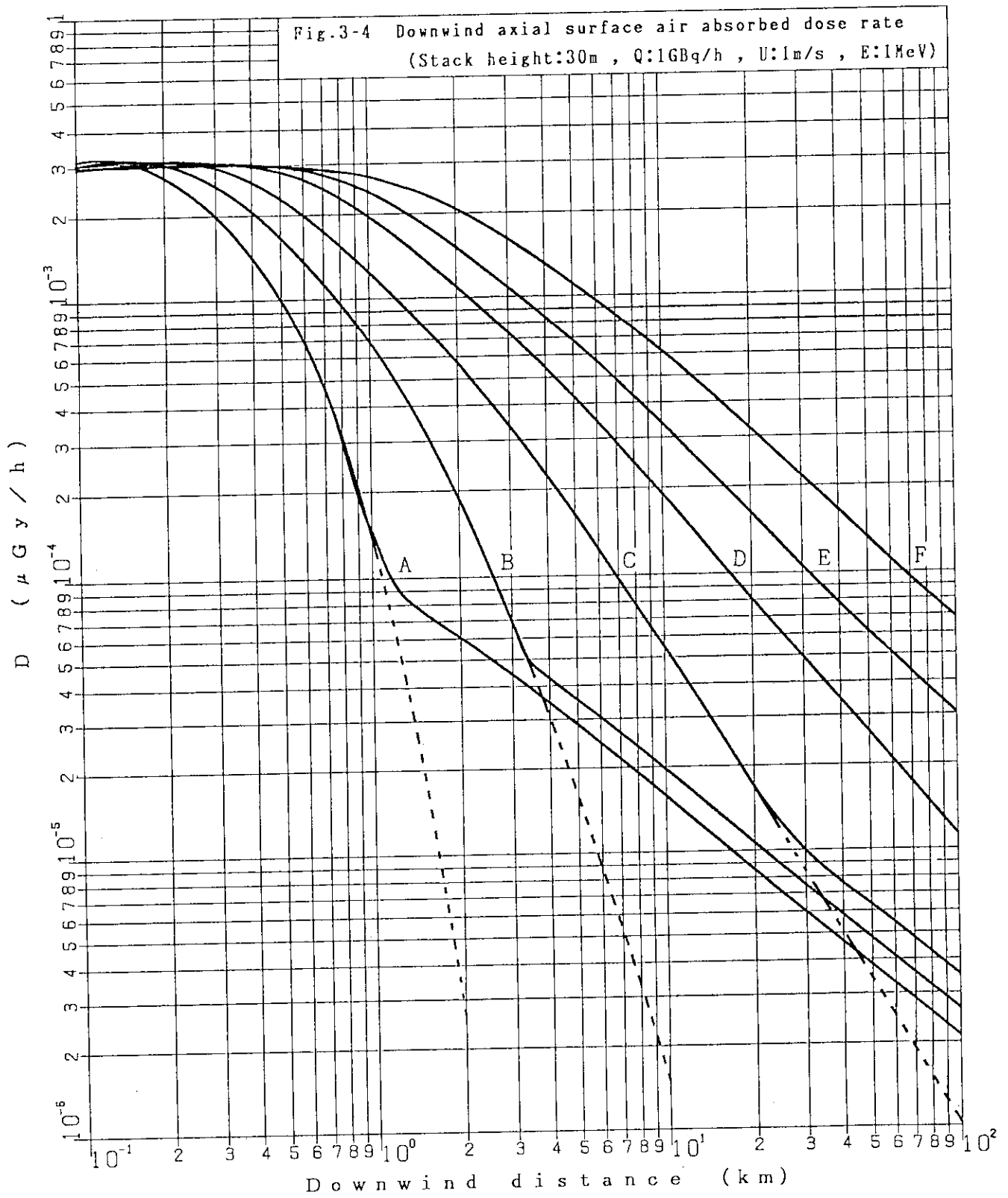
Q : 1 GBq/h
 Stack height : 200 m
 U : 1 m/s
 Stability : F

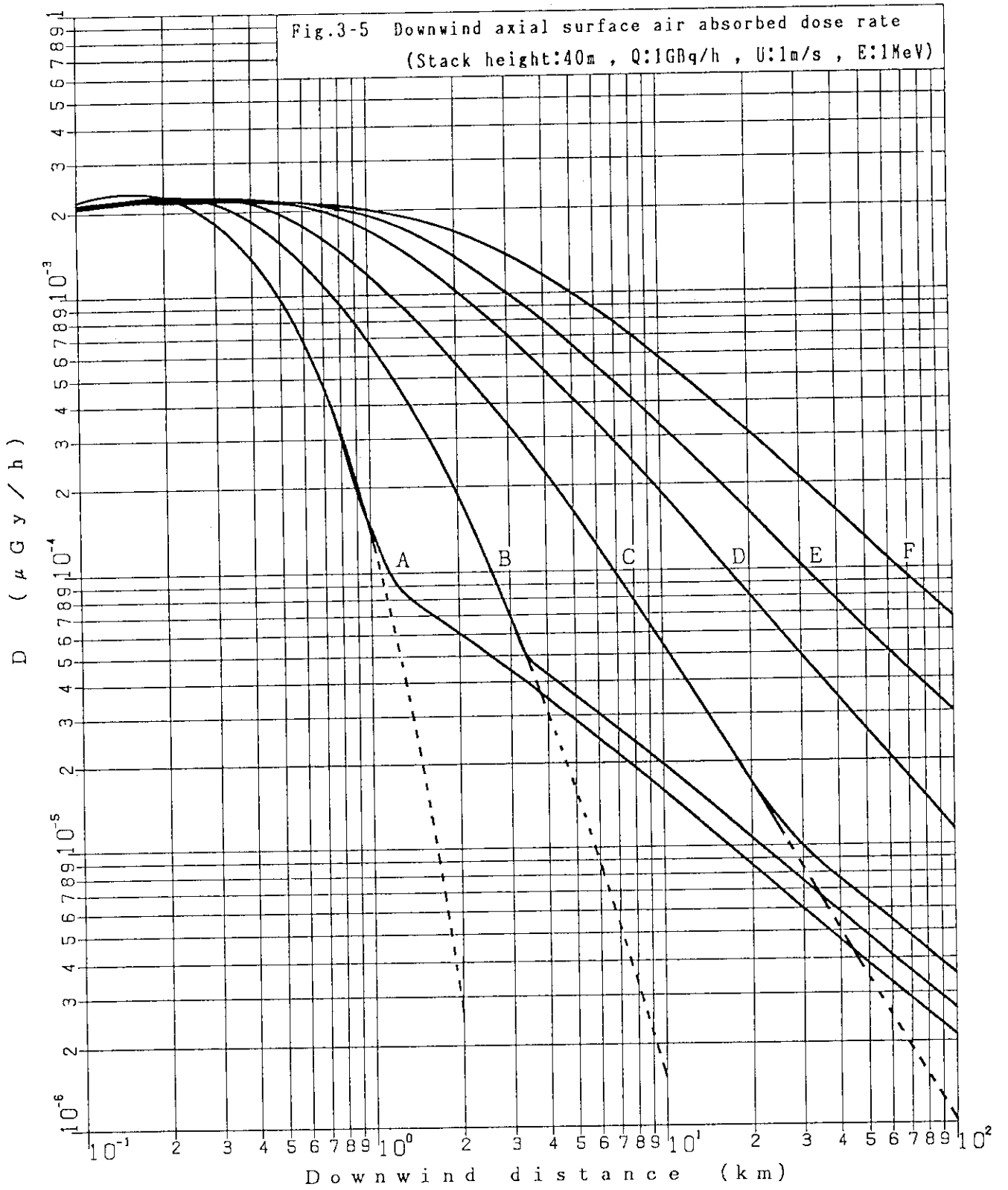
Crosswind distance (km)

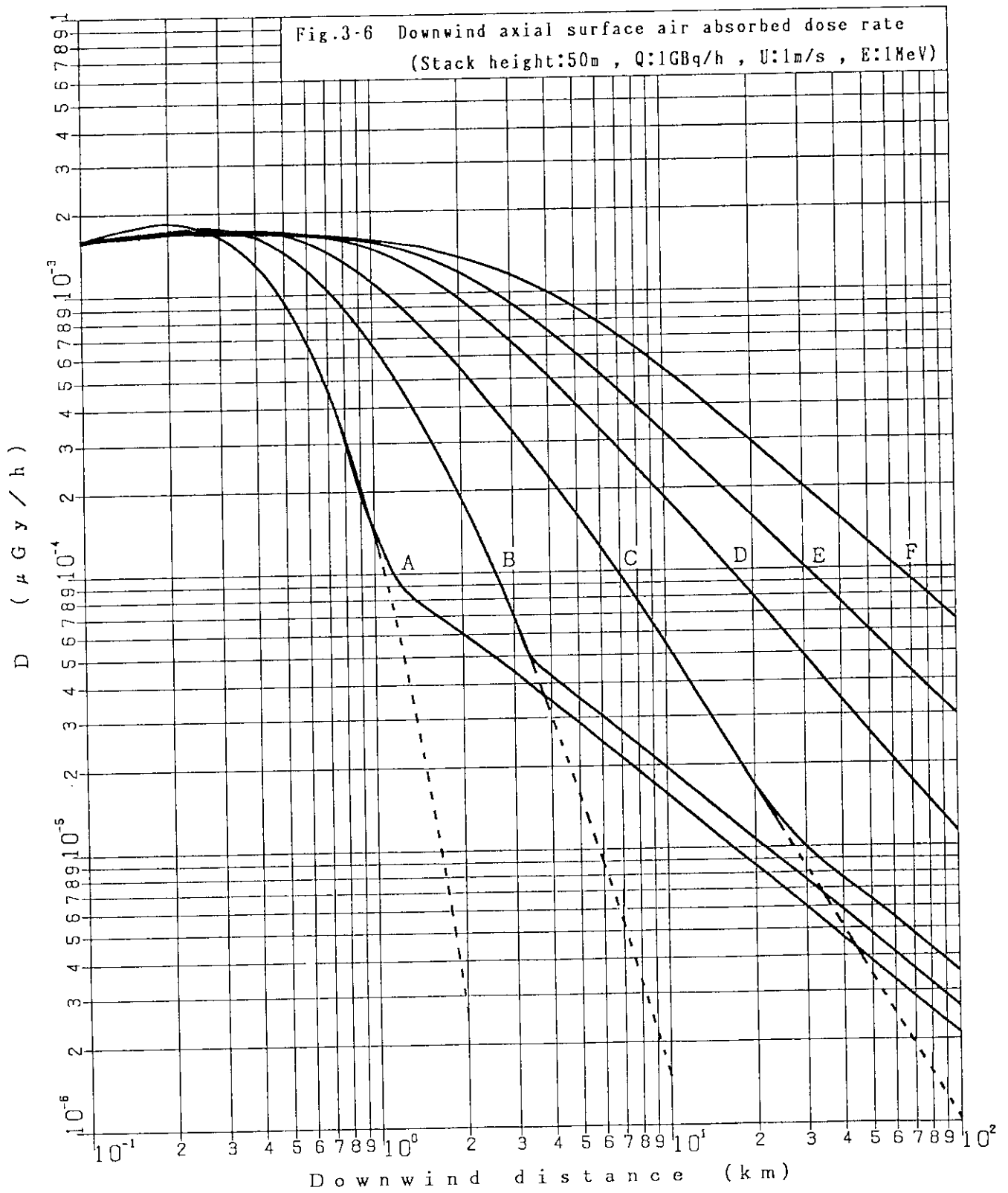


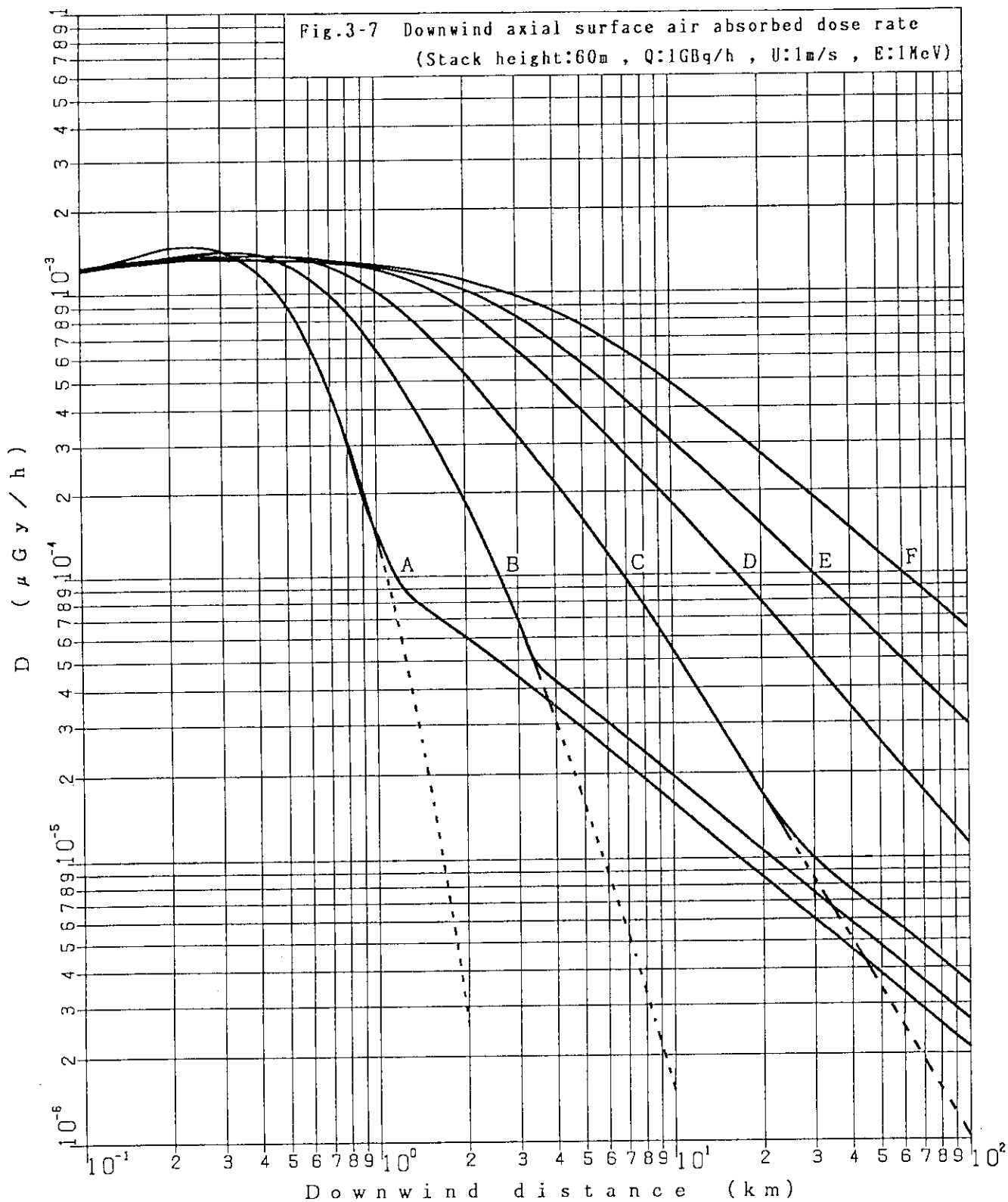


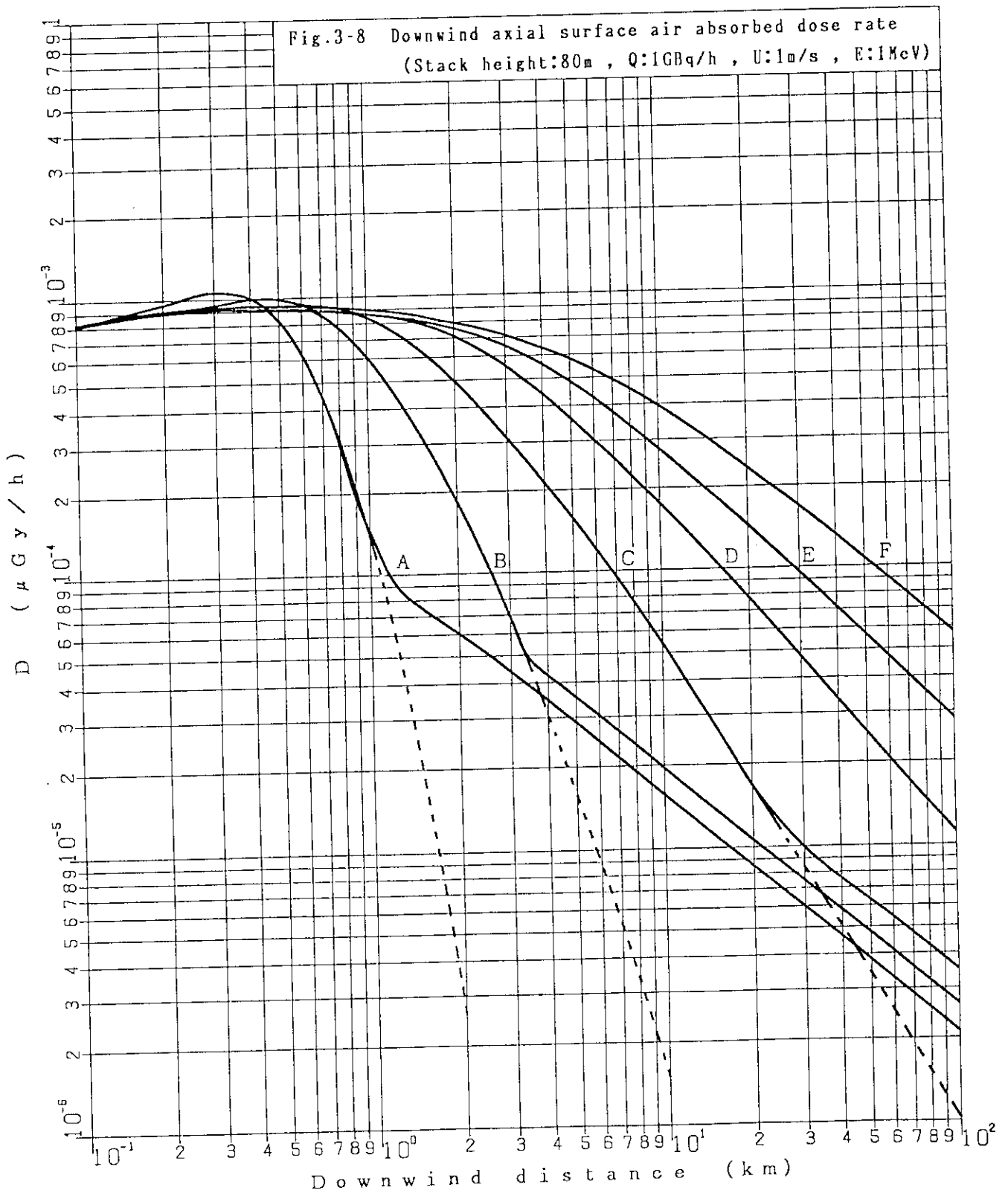


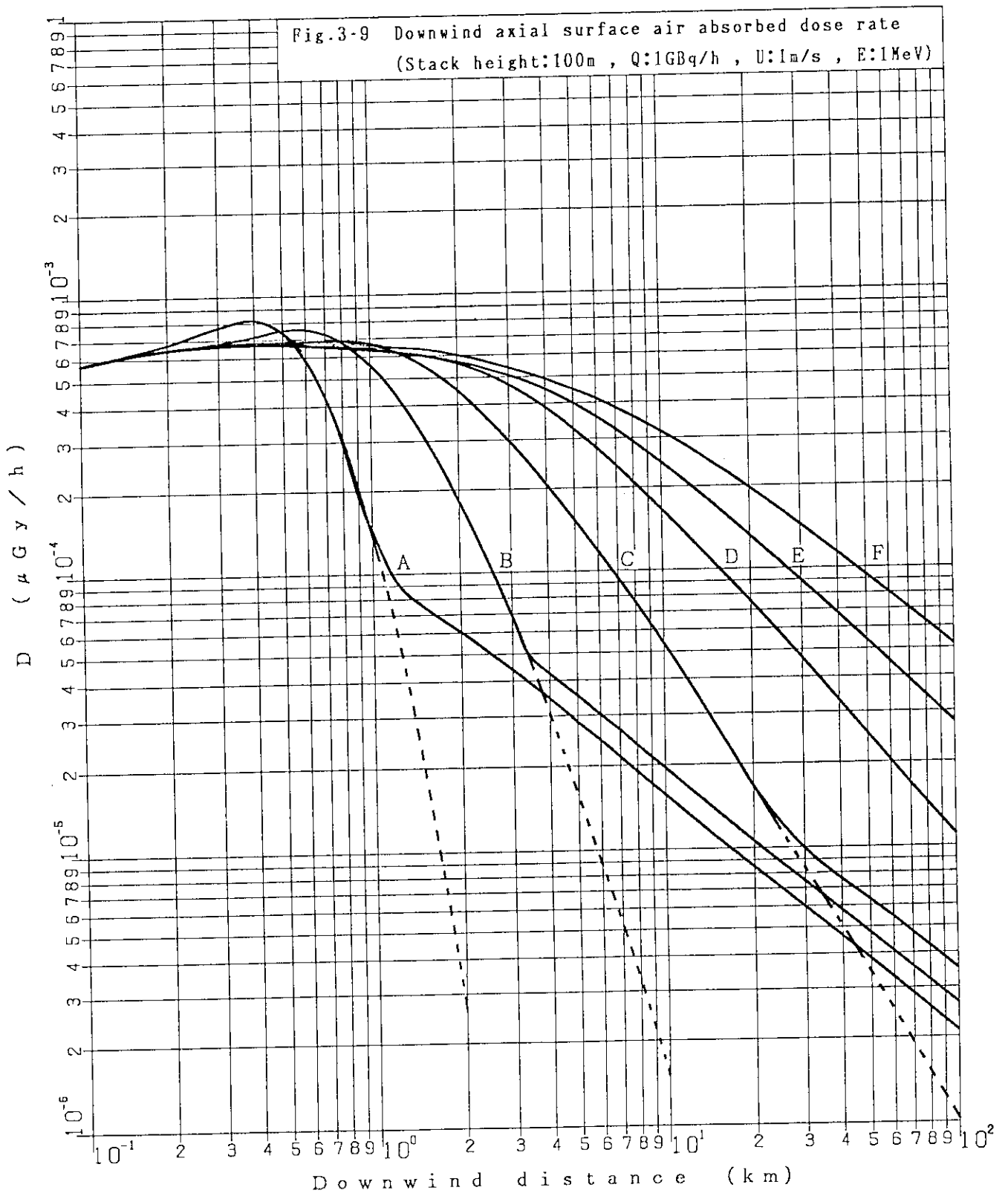


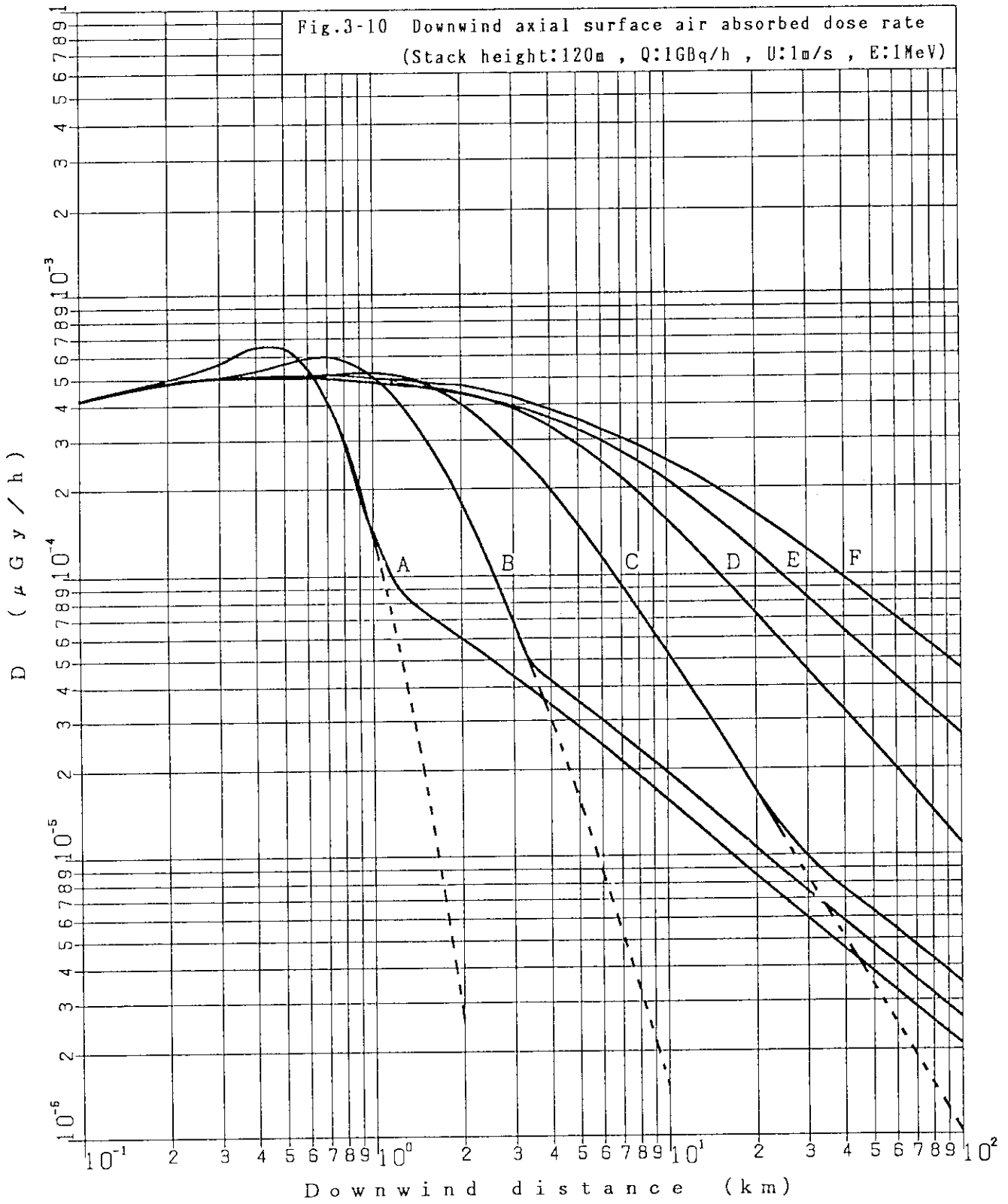


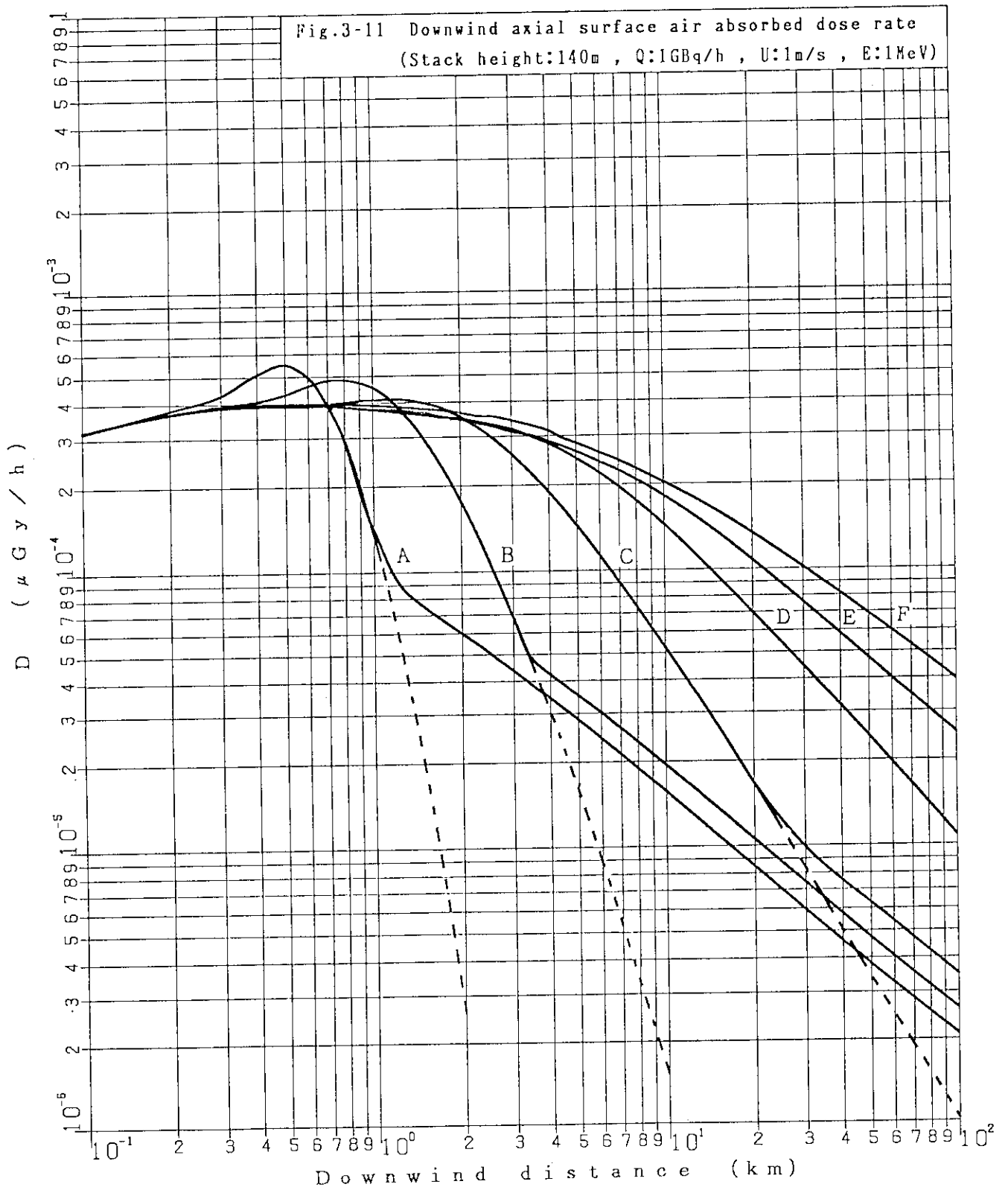


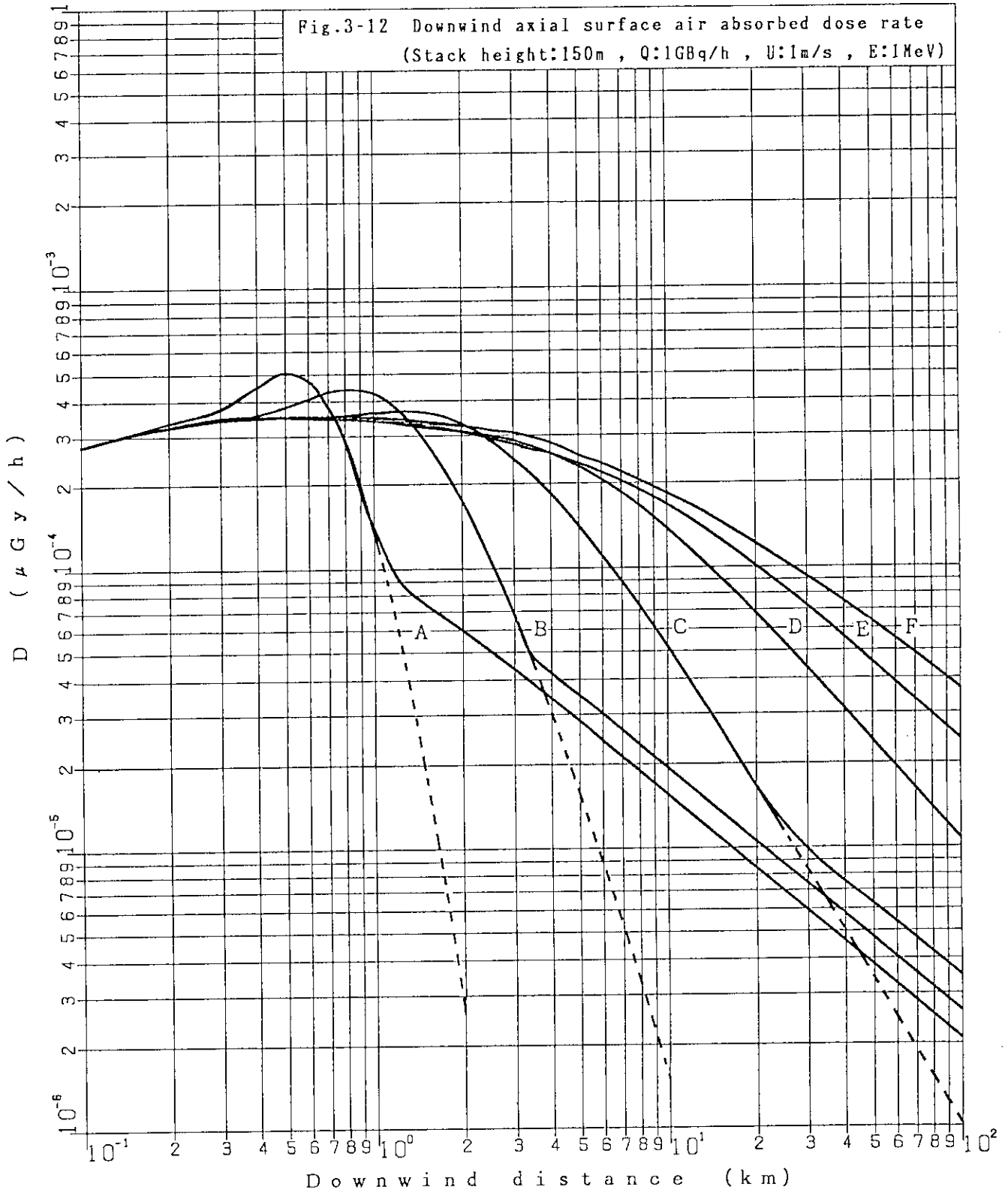


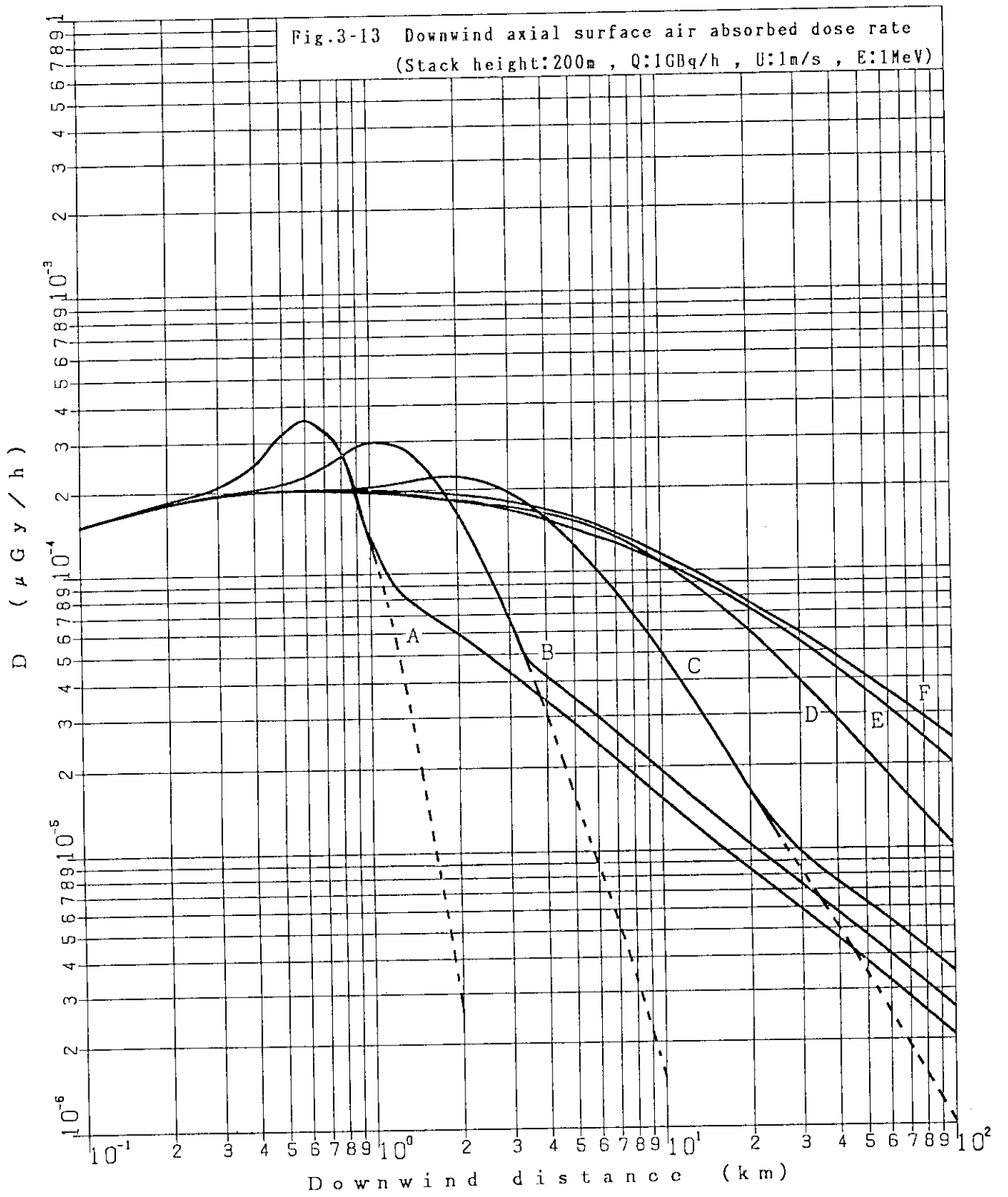




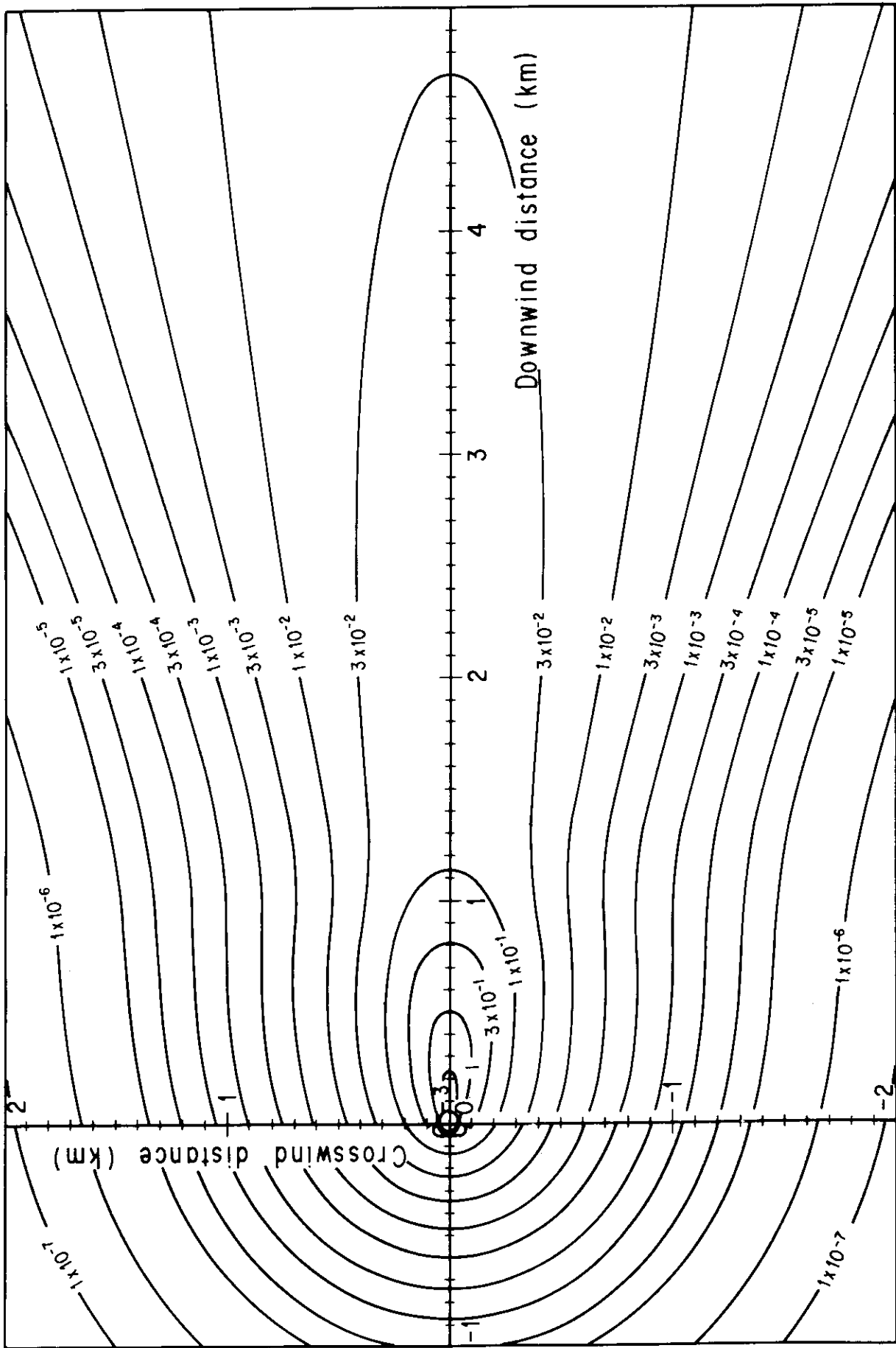








unit : nGy / h



scale : 1 / 25000

Fig. 4-1-1 (A) Isopleths of surface air absorbed dose rate

Q : 1 Gbq/h Stack height : 0 m
 E : 1 MeV/dis Stability : A
 U : 1 m/s

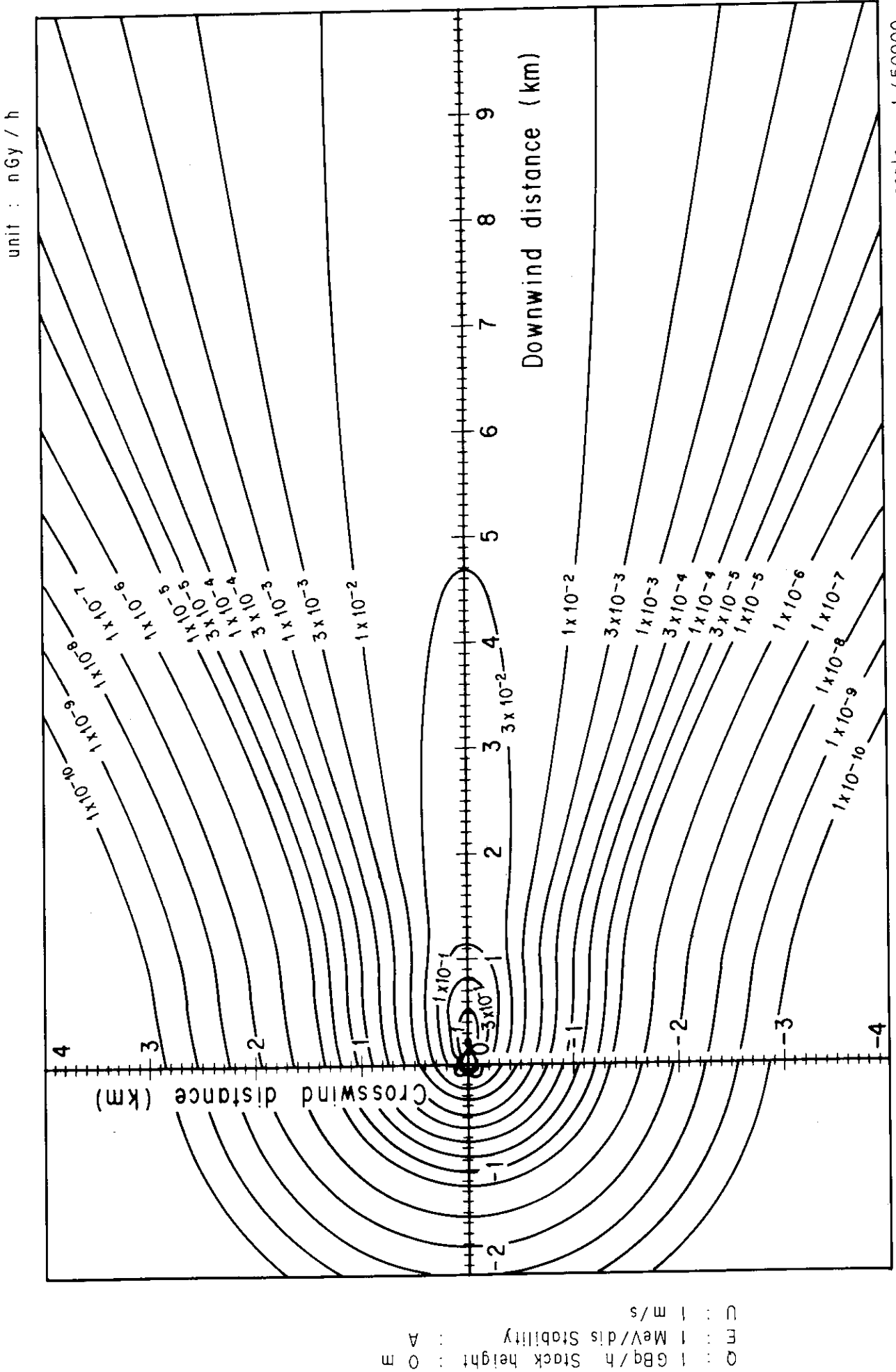
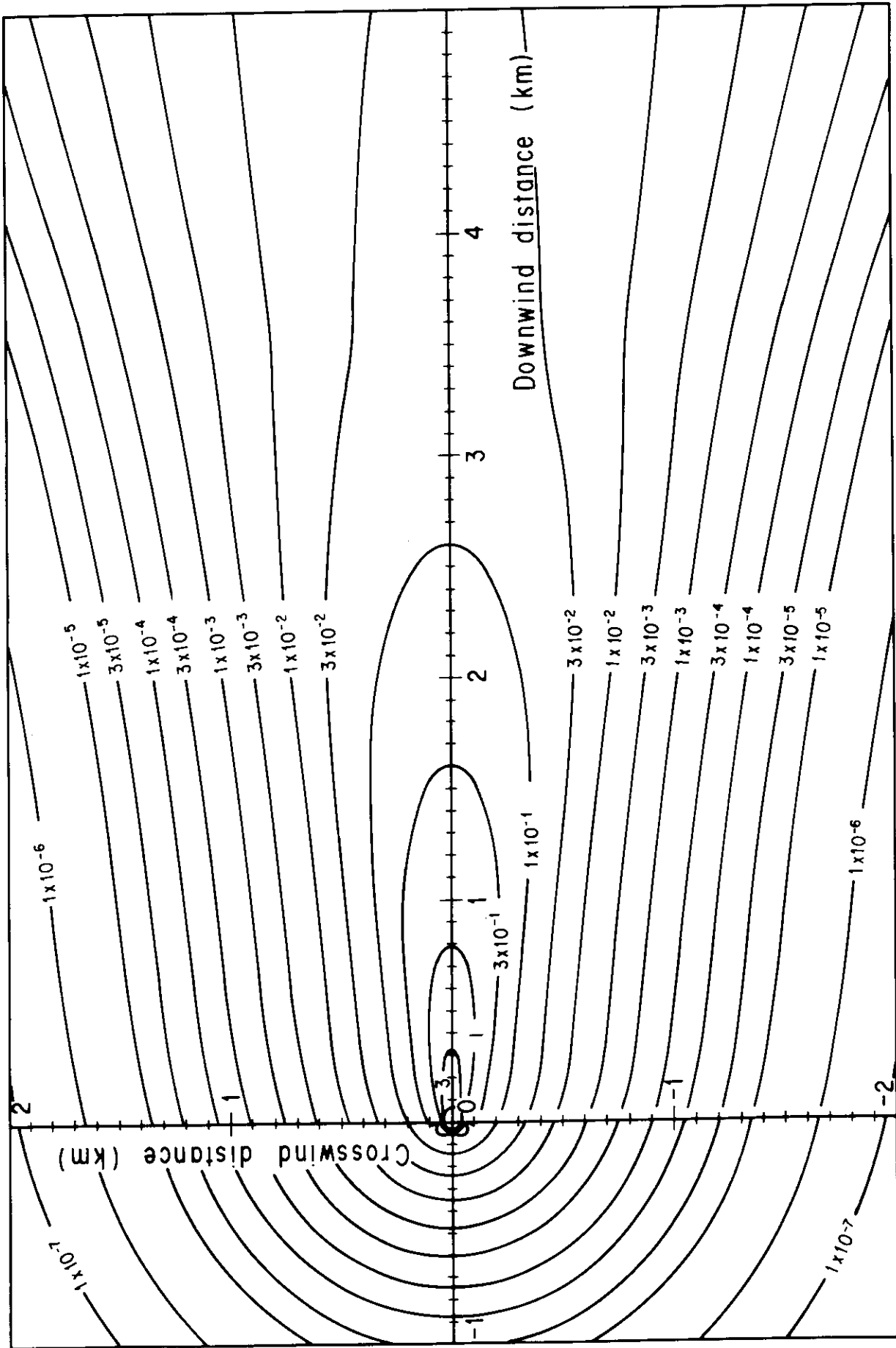


Fig.4-1-1 (B) Isopleths of surface air absorbed dose rate

unit : nGy / h



scale : 1 / 25000

Fig. 4-1-2 (A) Isopleths of surface air absorbed dose rate

Q : 1 GBq/h Stack height : 0 m
 E : 1 MeV/dis Stability : B
 U : 1 m/s

unit : nGy / h

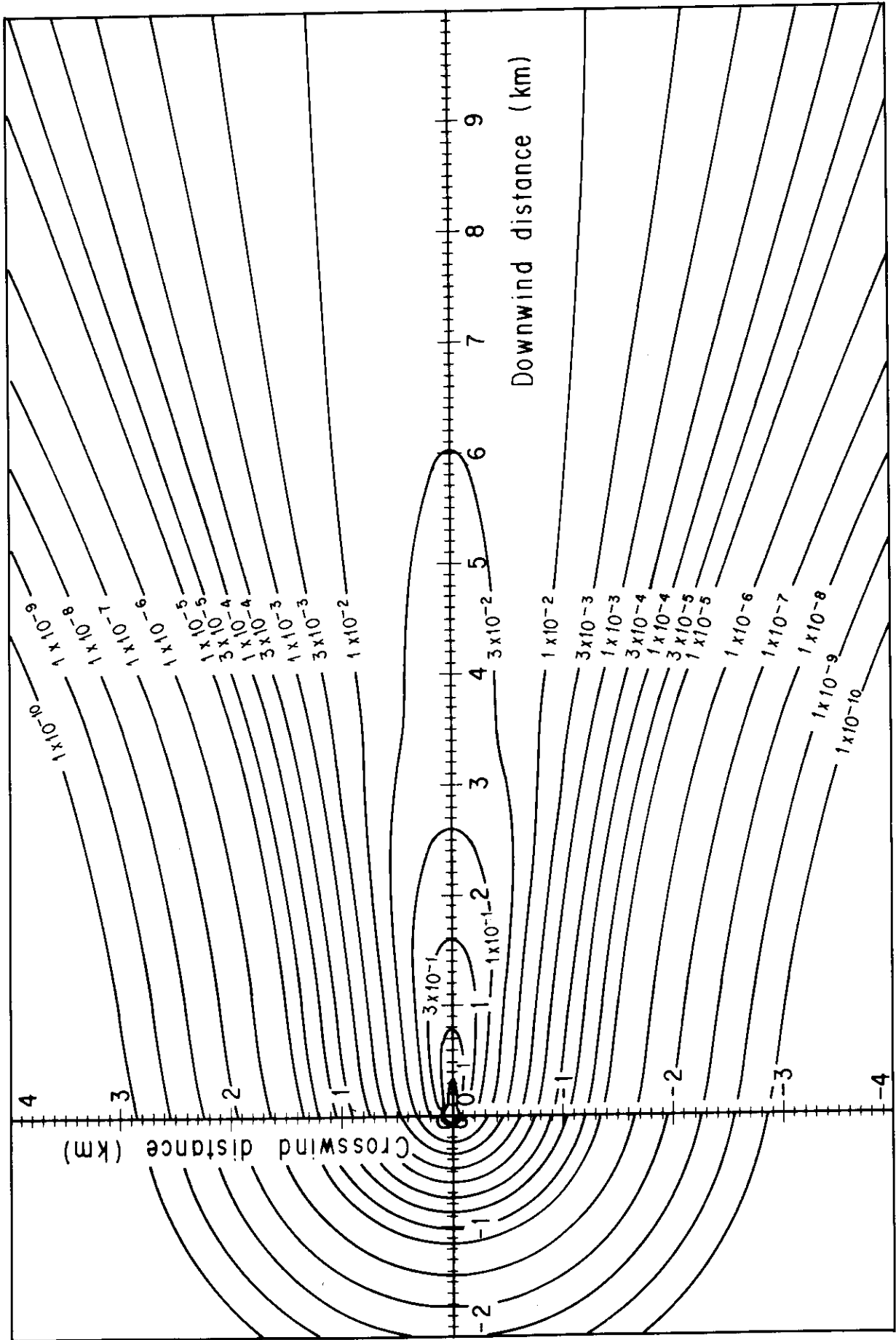
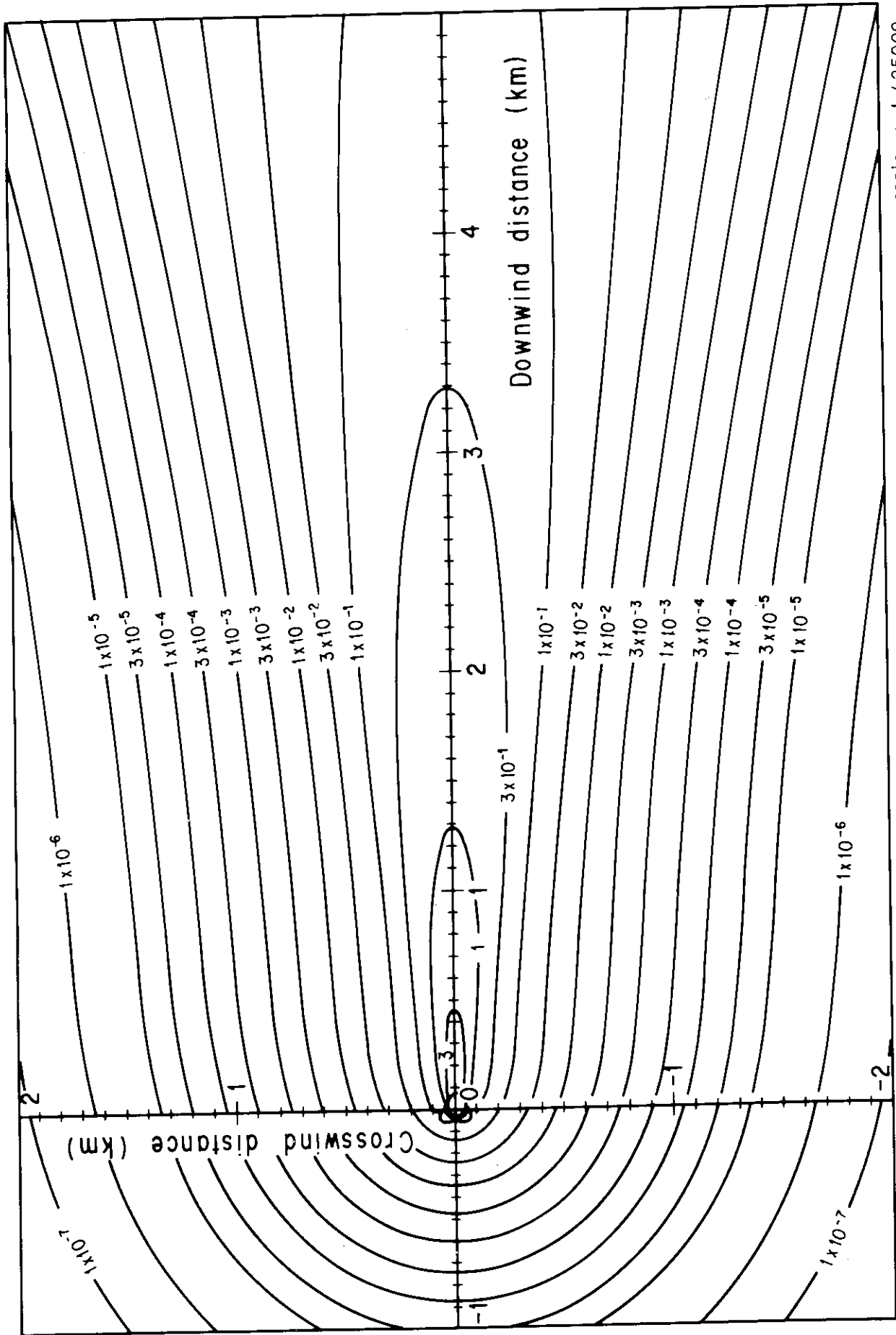


Fig.4-1-2 (B) Isopleths of surface air absorbed dose rate

Q : 1 GBq/h Stack height : 0 m
E : 1 MeV/dis Stability : B
U : 1 m/s

unit : nGy / h

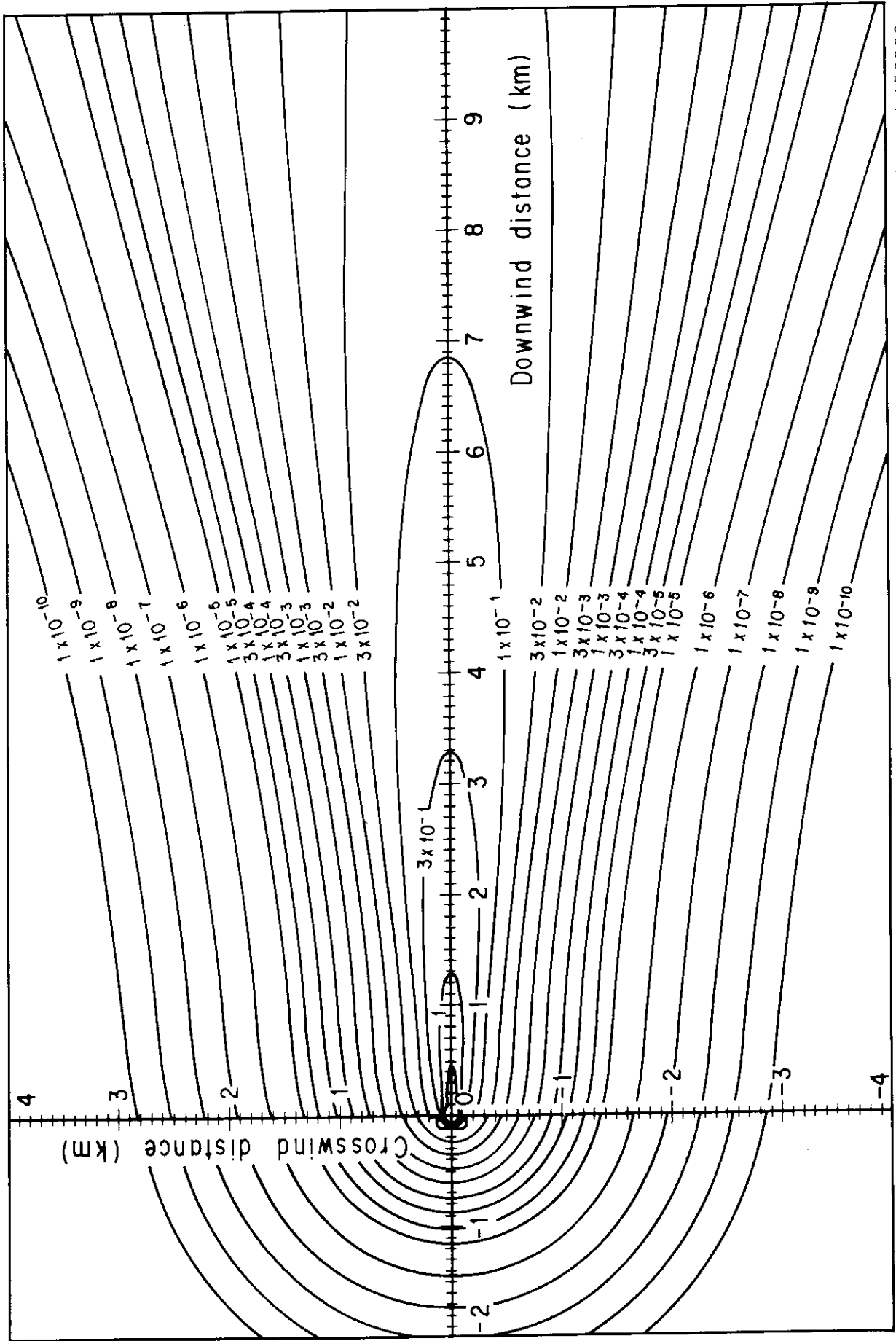


scale : 1/25000

Fig.4-1-3 (A) Isopleths of surface air absorbed dose rate

Q : 1 GBq/h Stack height : 0 m
 E : 1 MeV/dis Stability : C
 U : 1 m/s

unit : nGy / h

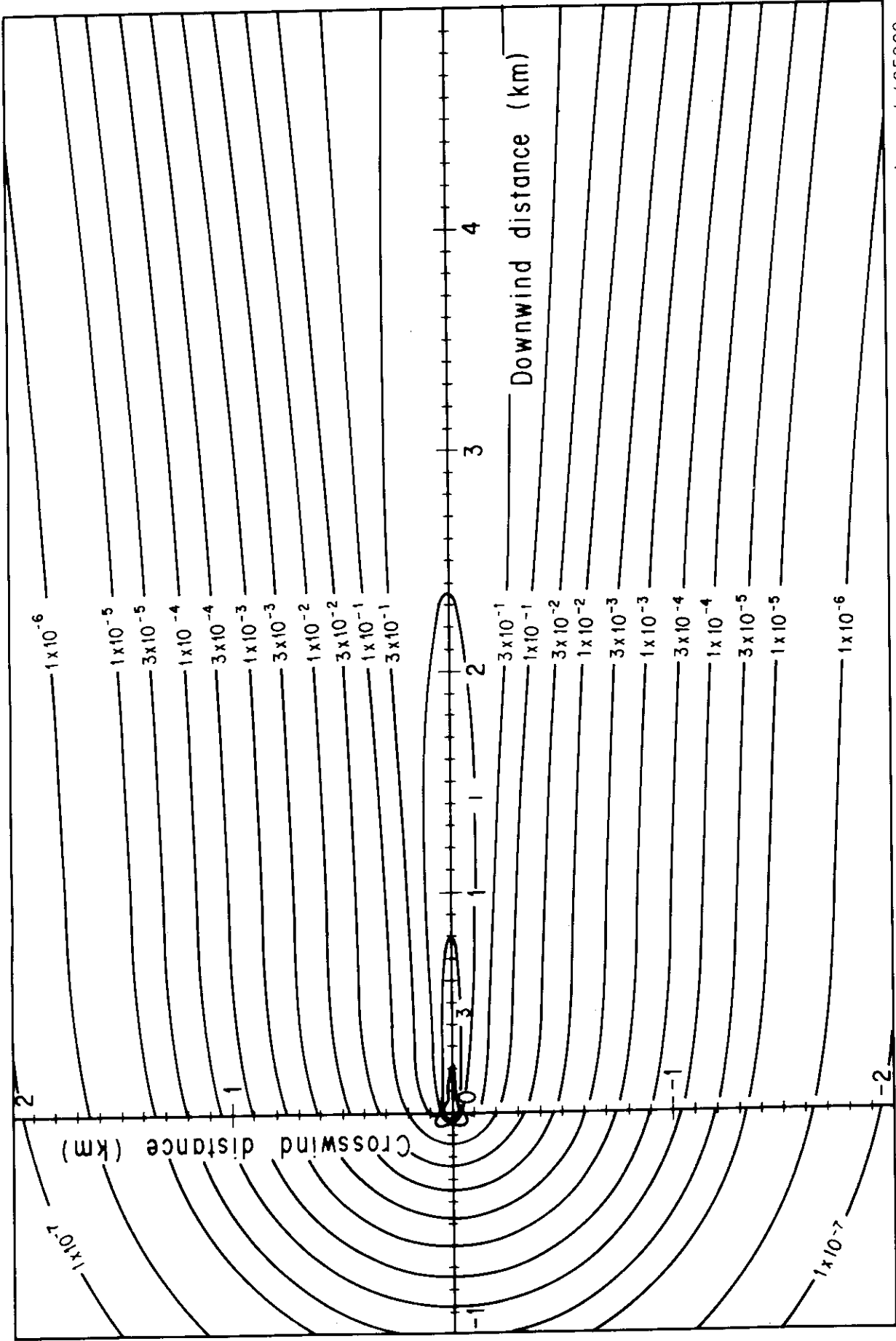


scale : 1/50000

Fig.4-1-3 (B) Isopleths of surface air absorbed dose rate

Q : 1 GBq/h Stack height : 0 m
 E : 1 MeV/dis Stability : C
 U : 1 m/s

unit : nGy / h

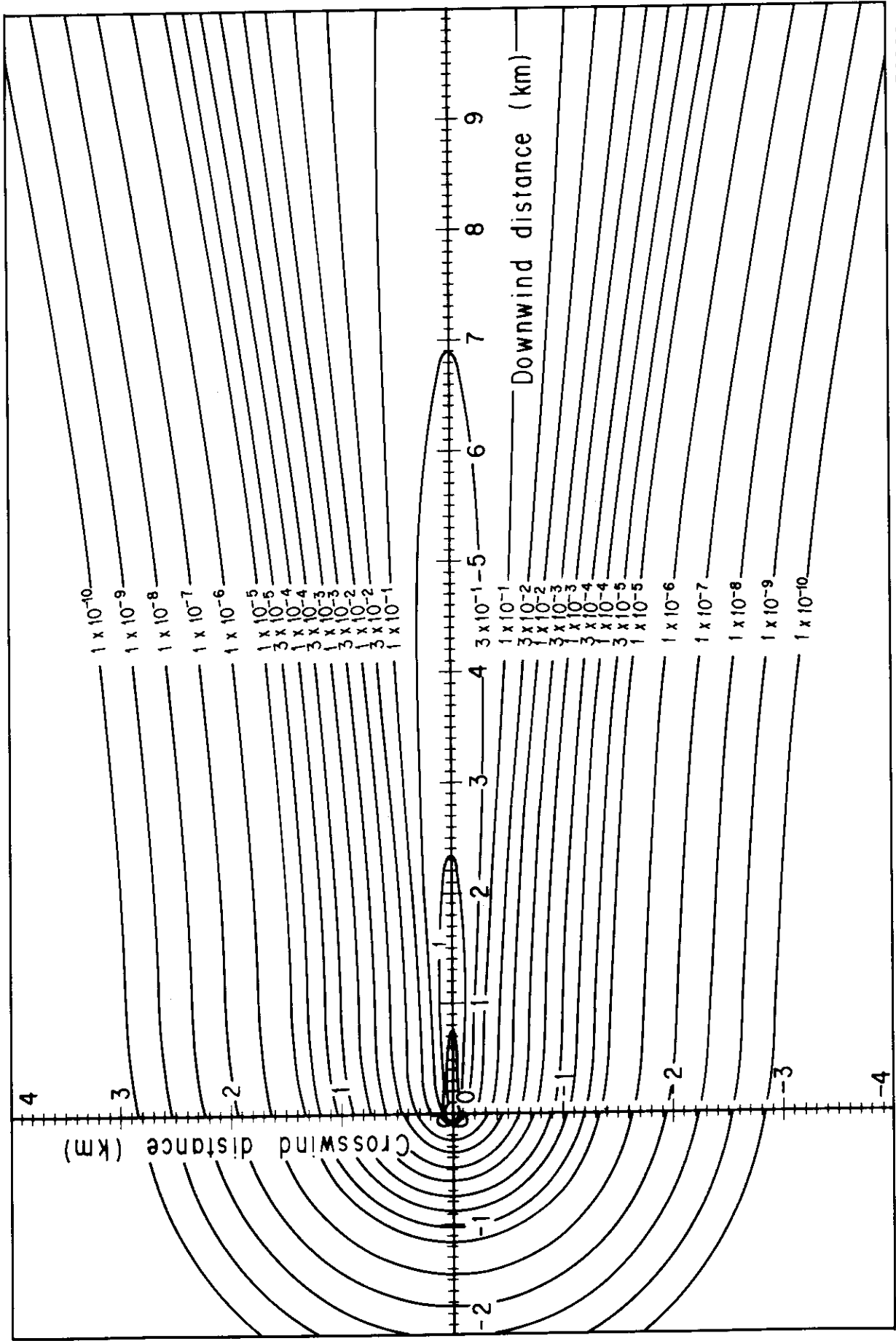


scale : 1 / 25000

Fig. 4-1-4 (A) Isopleths of surface air absorbed dose rate

Q : 1 GBq/h Stack height : 0 m
 E : 1 MeV/dis Stability : D
 U : 1 m/s

unit : nGy / h

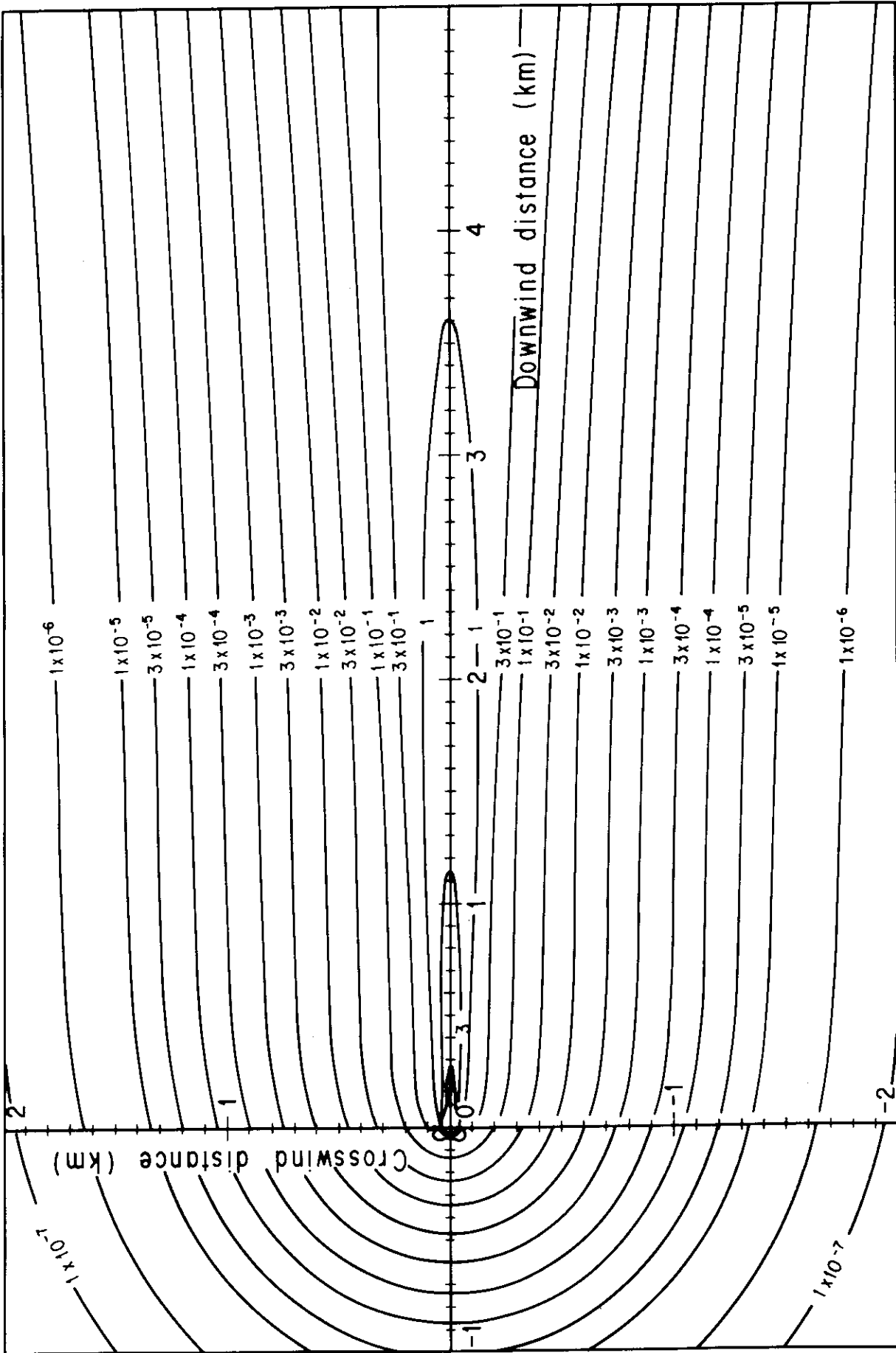


scale : 1/50000

Fig.4-1-4 (B) Isopleths of surface air absorbed dose rate

Q : 1 GBq/h Stack height : 0 m
 E : 1 MeV/dis Stability : 0
 U : 1 m/s

unit : nGy / h

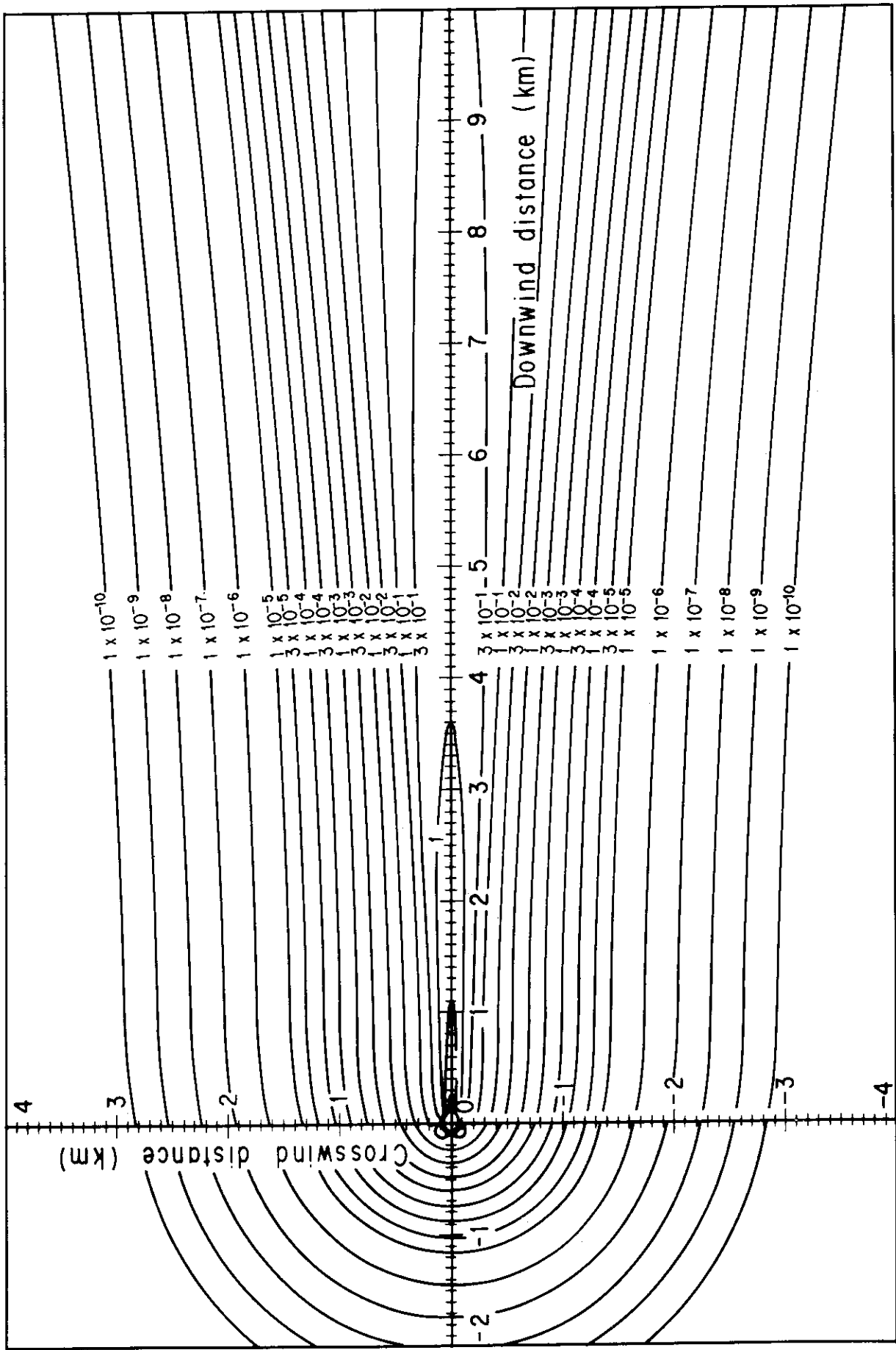


scale : 1 / 25000

Fig. 4-1-5 (A) Isopleths of surface air absorbed dose rate

Q : 1 GBq/h Stack height : 0 m
 E : 1 MeV/dis Stability : E
 U : 1 m/s

unit : nGy / h

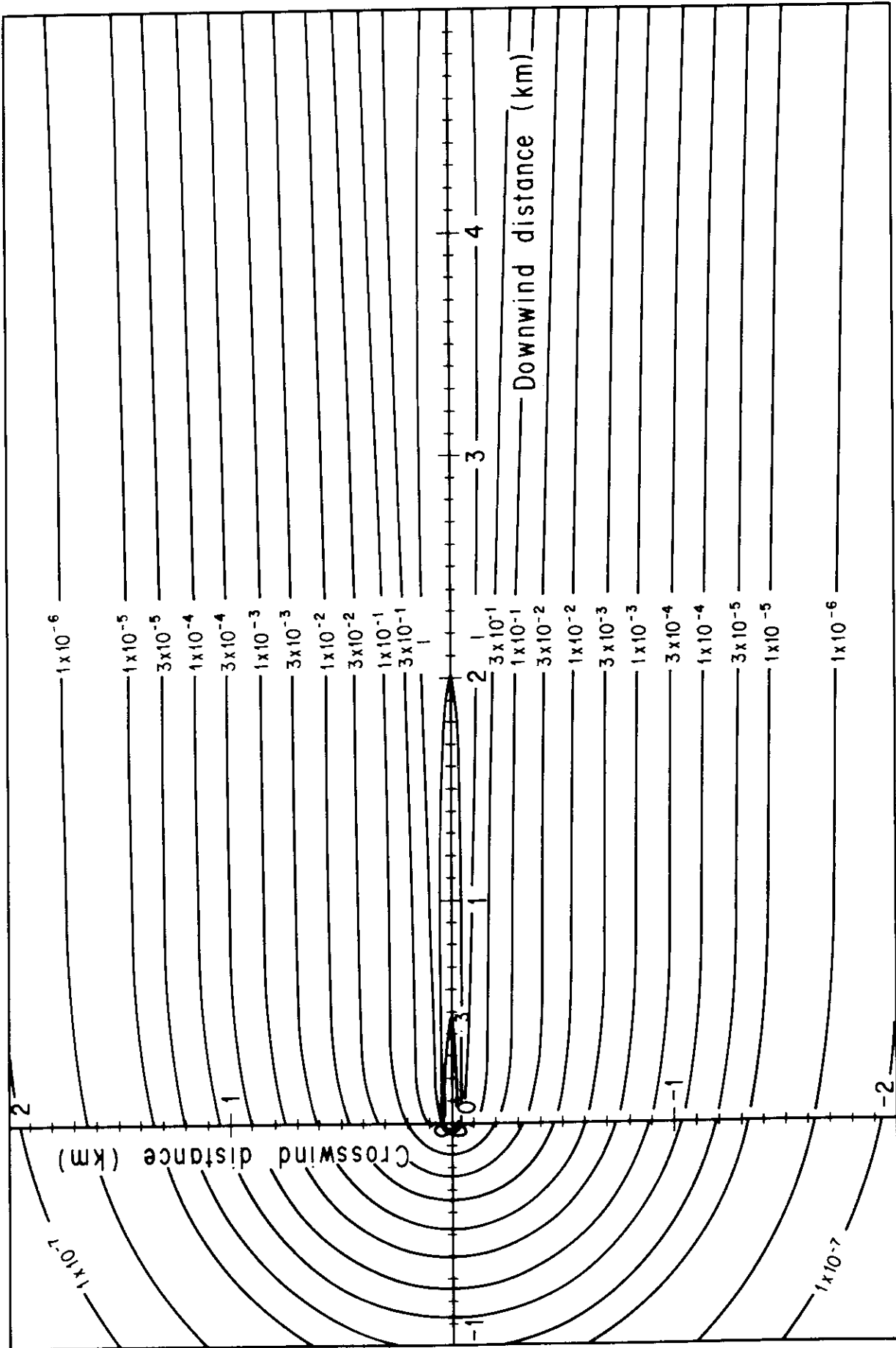


scale : 1 / 50000

Fig.4-1-5 (B) Isopleths of surface air absorbed dose rate

Q : 1 Gq/h Stack height : 0 m
 F : 1 MeV/dis Stability : E
 U : 1 m/s

unit : nGy / h

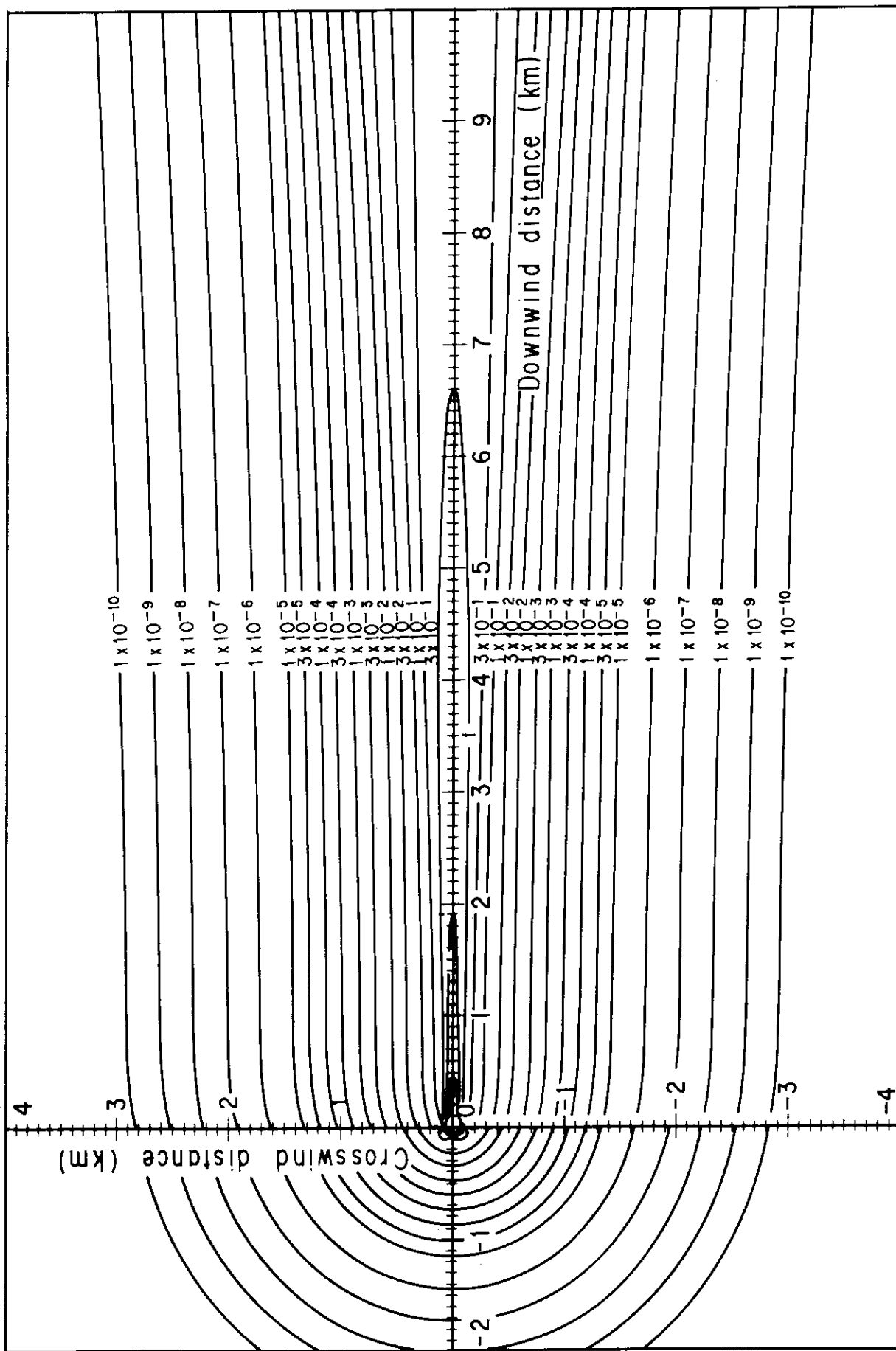


scale : 1 / 25000

Fig. 4-1-6 (A) Isopleths of surface air absorbed dose rate

Q : 1 Gq/h Stack height : 0 m
 E : 1 MeV/dis Stability : F
 U : 1 m/s

unit : nGy / h

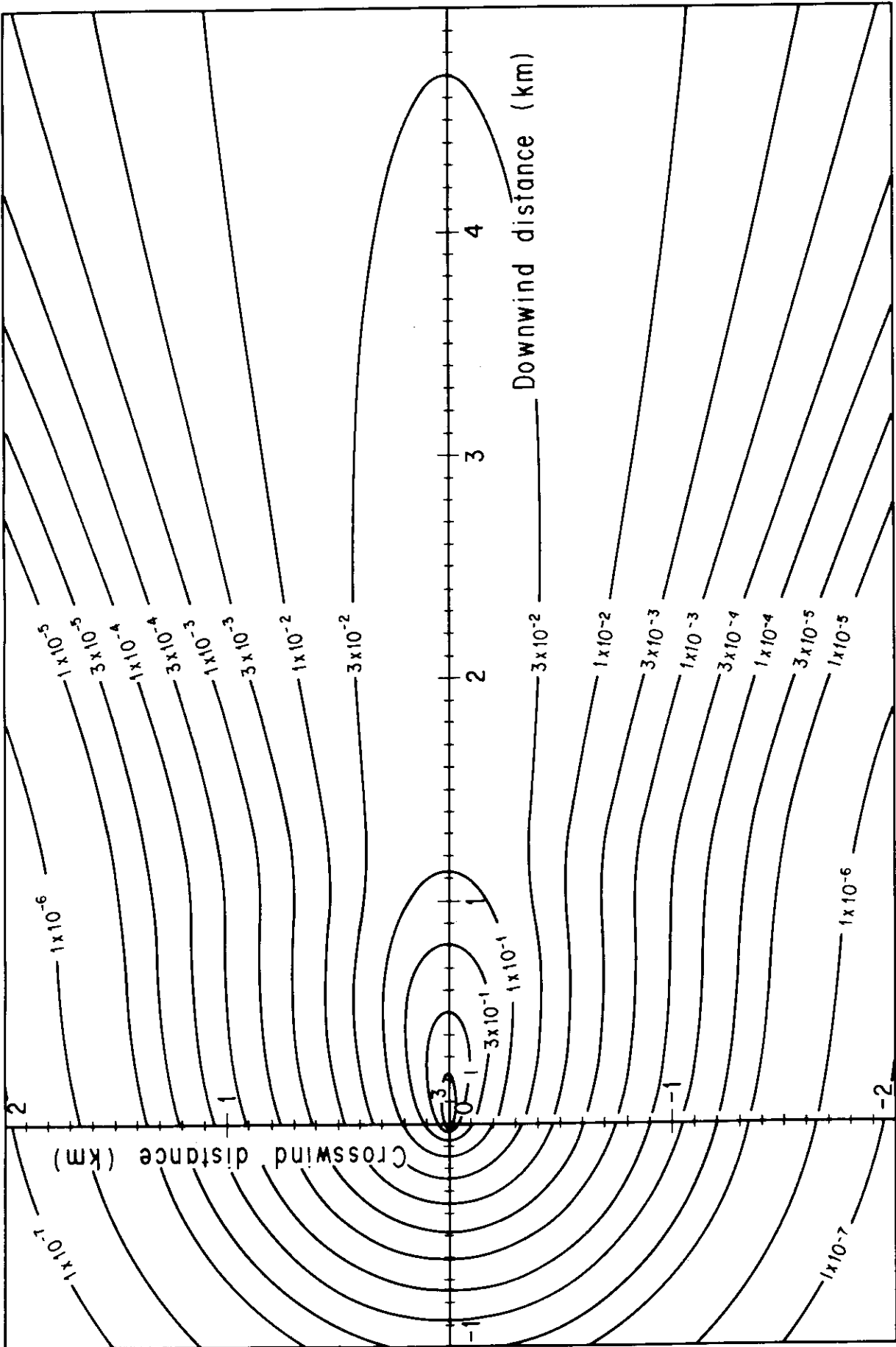


Q : 1 GBq/h Stack height : 0 m
 E : 1 MeV/dis Stability : F
 U : 1 m/s

scale : 1/50000

Fig.4-1-6 (B) Isopleths of surface air absorbed dose rate

unit : nGy / h

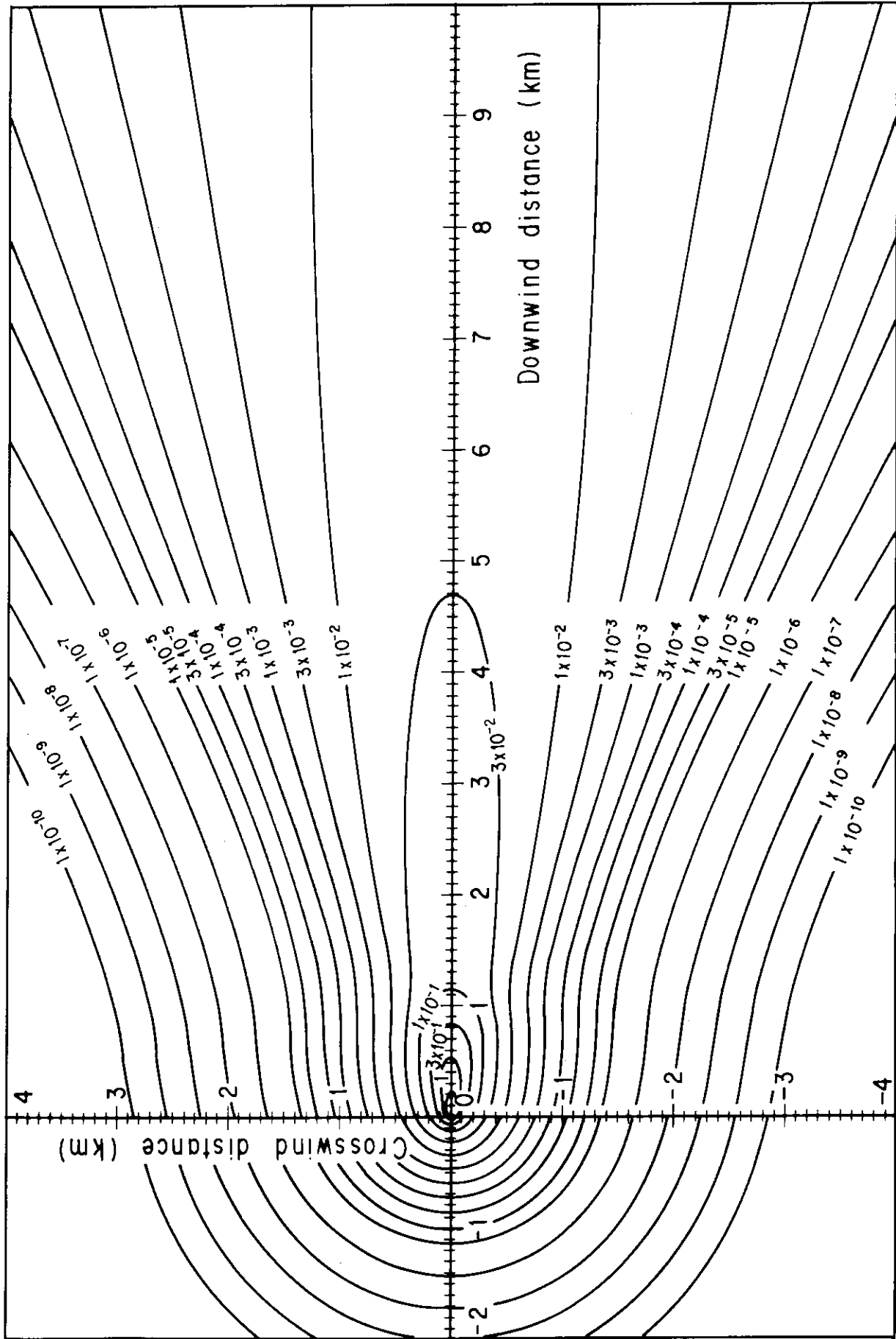


scale : 1/25000

Fig. 4-2-1 (A) Isopleths of surface air absorbed dose rate

Q : 1 GBq/h Stack height : 10 m
 E : 1 MeV/dis Stability : A
 U : 1 m/s

unit : nGy / h

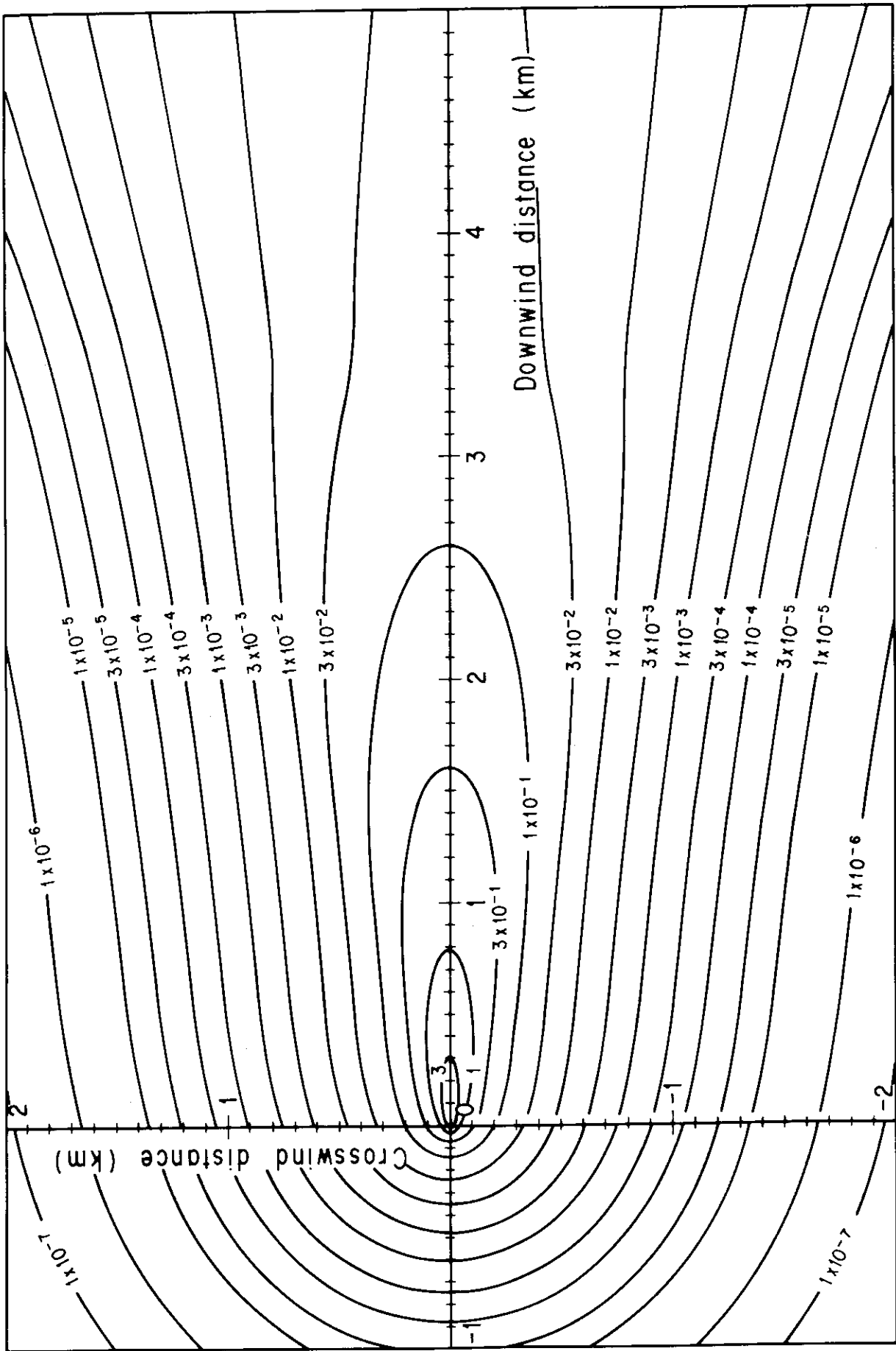


scale : 1 / 50000

Fig.4-2-1 (B) Isopleths of surface air absorbed dose rate

Q : 1 GBq/h Stack height : 10 m
 E : 1 MeV/dis Stability : A
 U : 1 m/s

unit : nGy / h

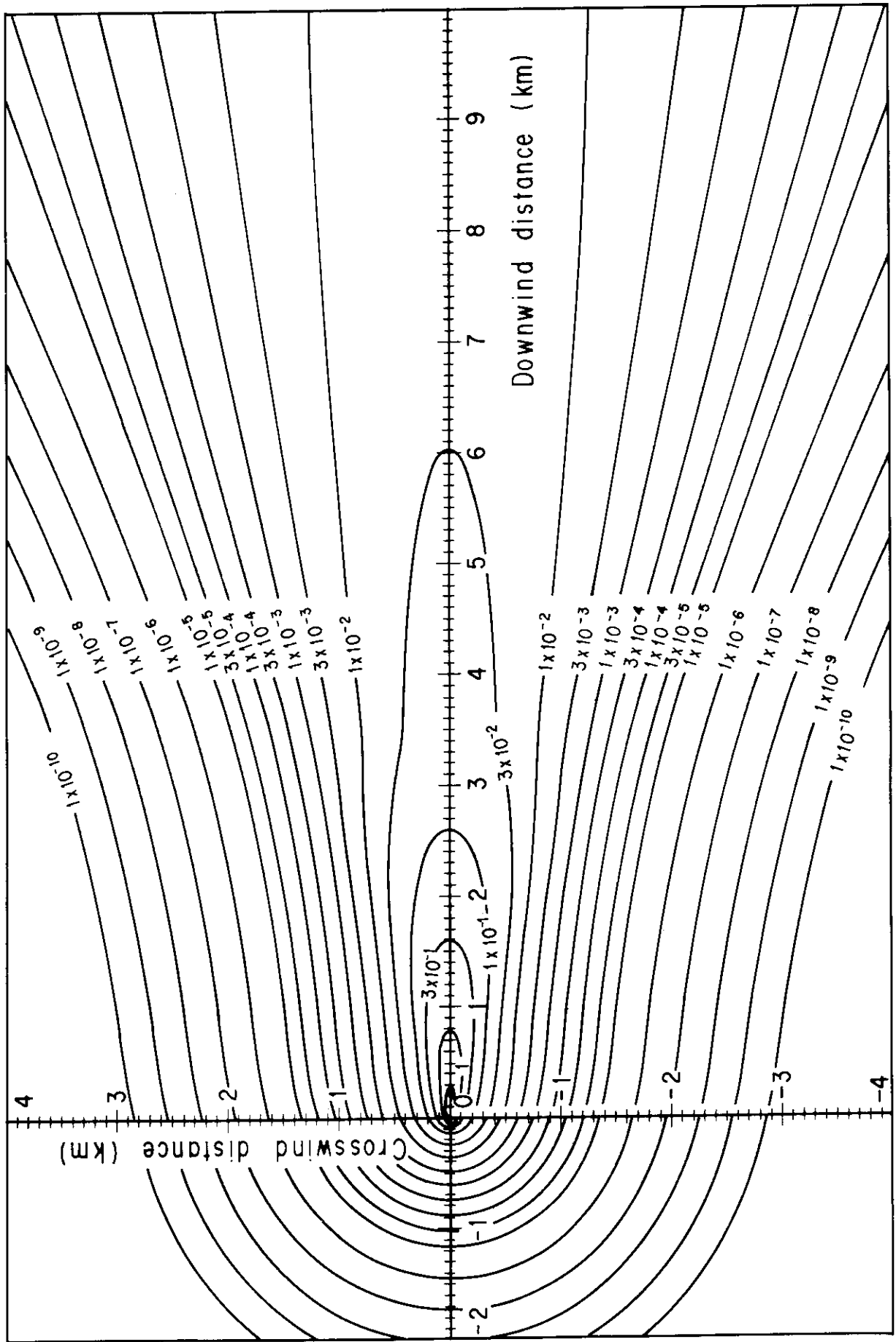


scale : 1/25000

Fig. 4-2-2 (A) Isopleths of surface air absorbed dose rate

Q : 1 GBq/h Stack height : 10 m
 E : 1 MeV/dis Stability : B
 U : 1 m/s

unit : nGy / h

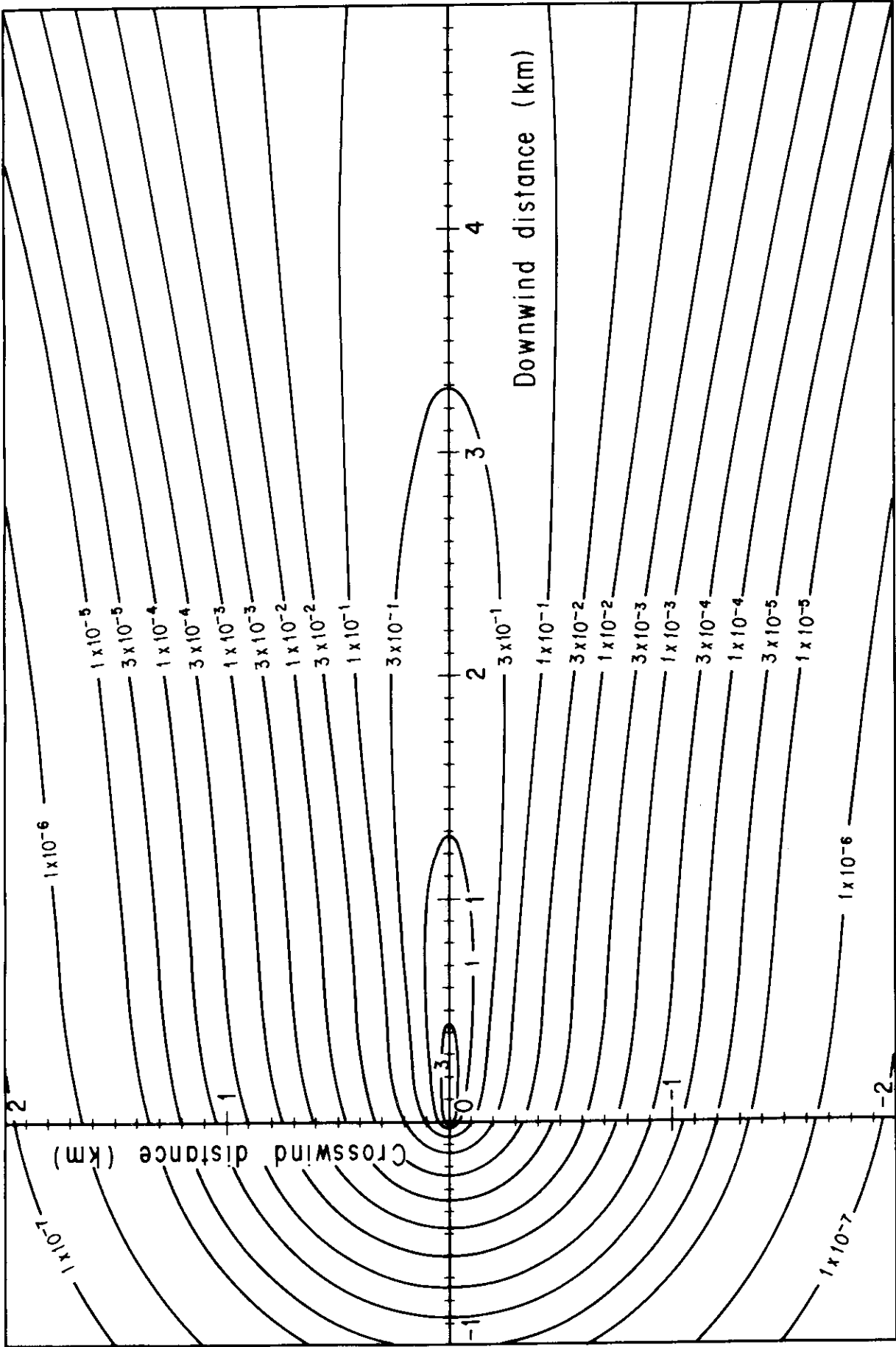


scale : 1 / 50000

Fig. 4-2-2 (B) Isopleths of surface air absorbed dose rate

Q : 1 GBq/h Stack height : 10 m
 E : 1 MeV/dis Stability : B
 U : 1 m/s

unit : nGy / h

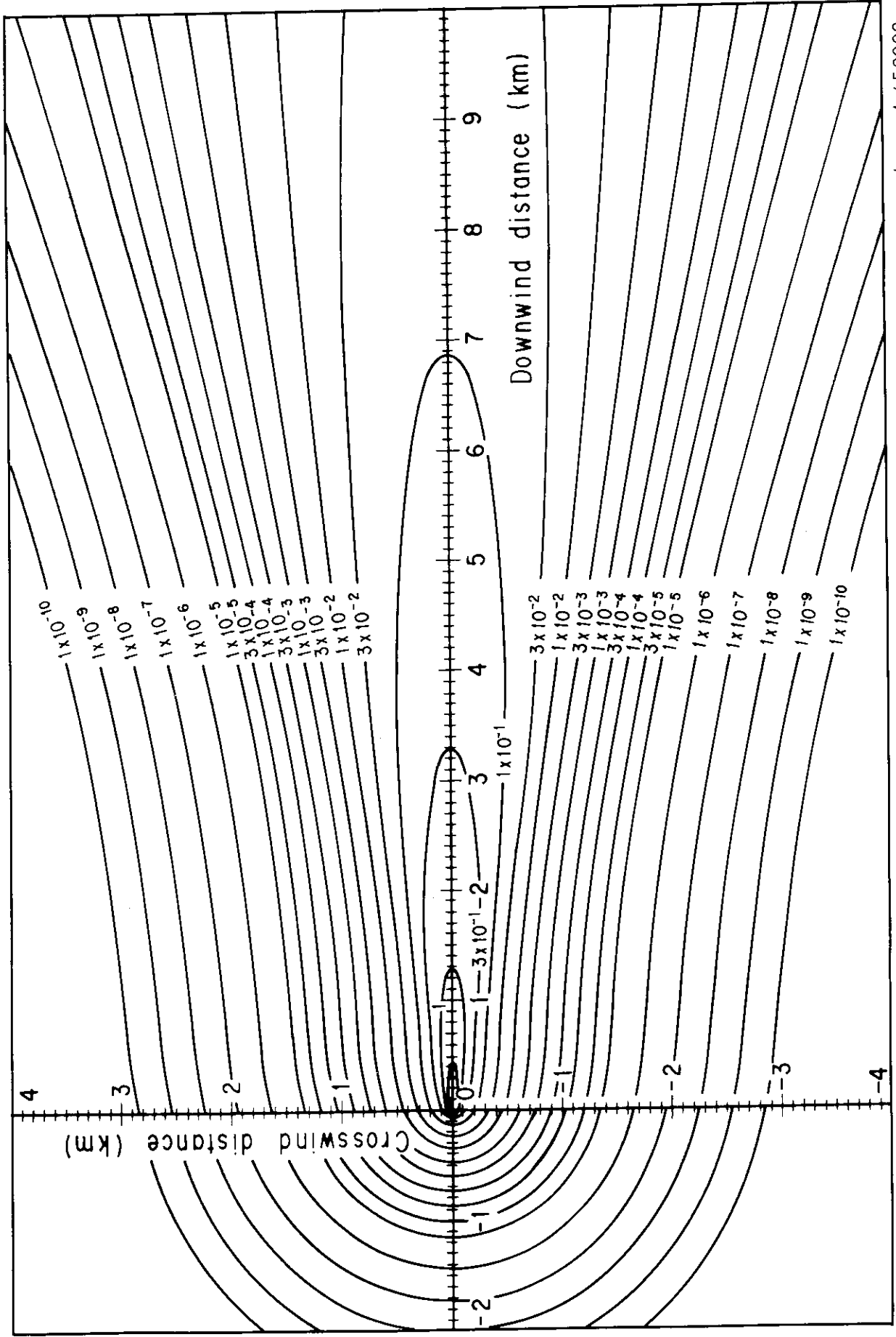


scale : 1/25000

Fig. 4-2-3 (A) Isopleths of surface air absorbed dose rate

Q : 1 Gbq/h Stack height : 10m
 E : 1 MeV/dis Stability : C
 U : 1 m/s

unit : nGy / h.

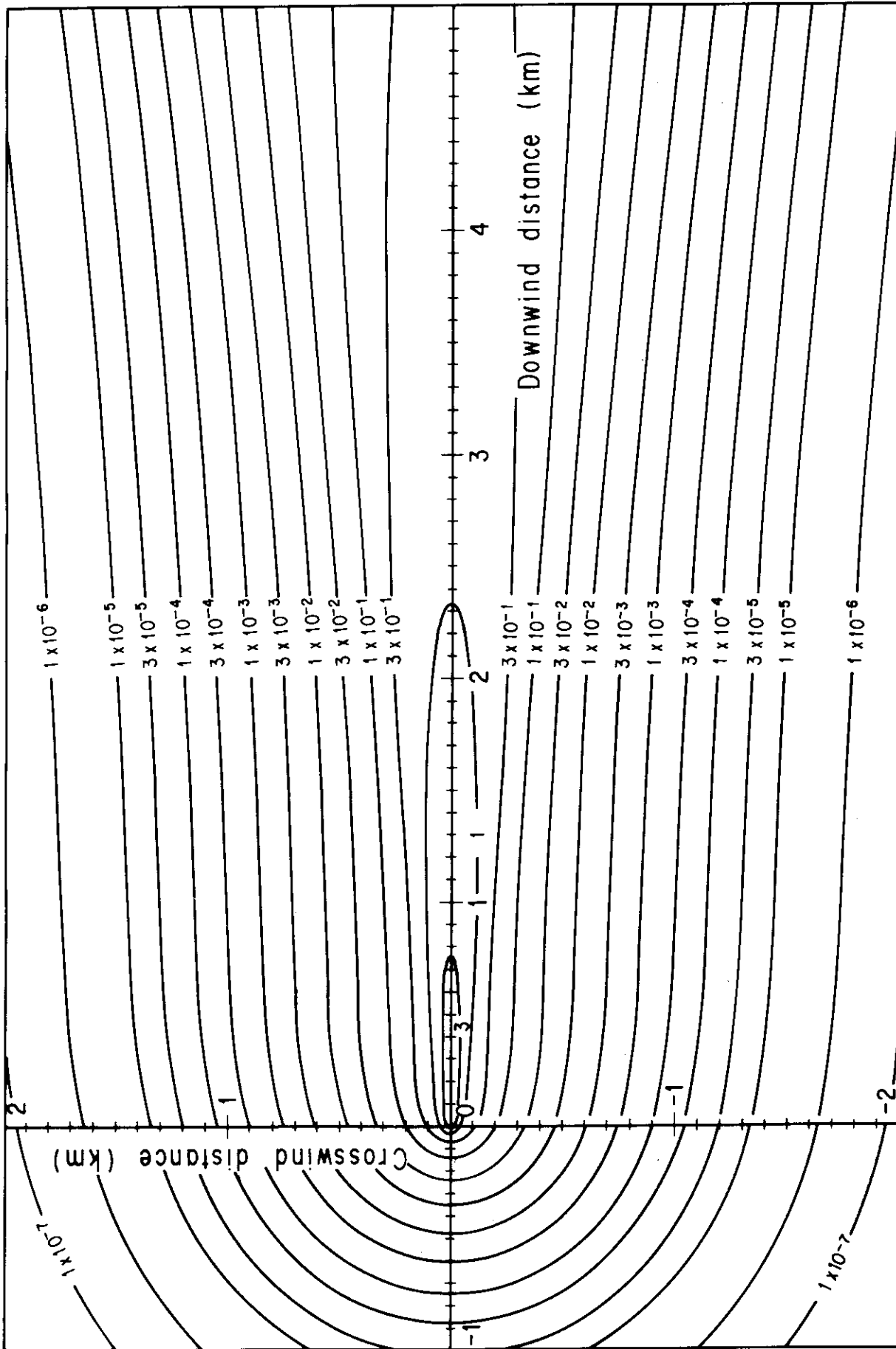


scale : 1 / 50000

Fig.4-2-3 (B) Isopleths of surface air absorbed dose rate

Q : 1 GBq/h Stack height : 10 m
 F : 1 MeV/ds Stability : C
 U : 1 m/s

unit : nGy / h

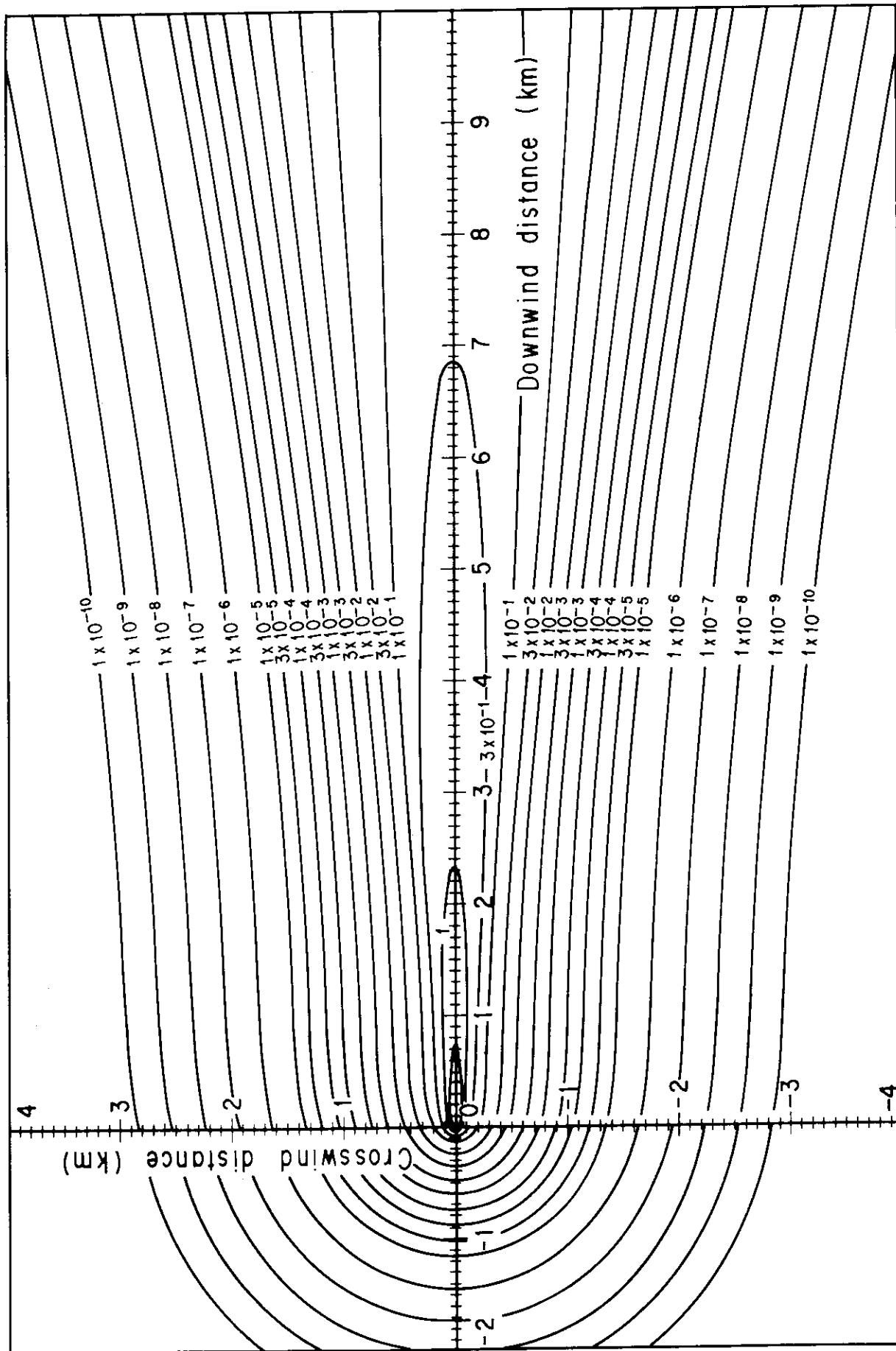


Q : 1 GBq/h Stack height : 10m
 E : 1 MeV/dis Stability : D
 U : 1 m/s

scale : 1 / 25000

Fig. 4-2-4 (A) Isopleths of surface air absorbed dose rate

unit : nGy / h

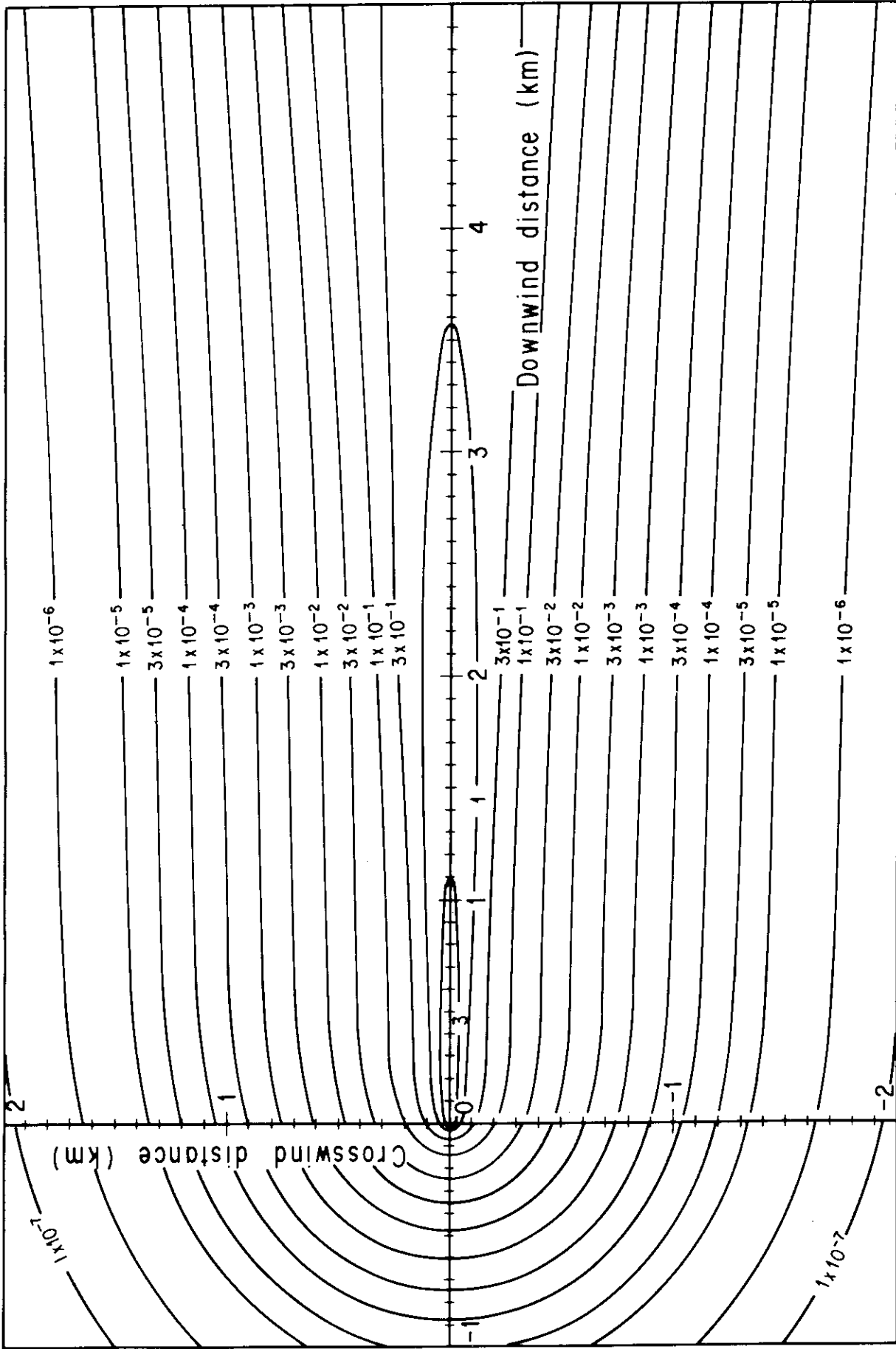


scale : 1 / 50000

Fig.4-2-4 (B) Isopleths of surface air absorbed dose rate

Q : 1 GBq/h Stack height : 10 m
 E : 1 MeV/dis Stability : D
 U : 1 m/s

unit : nGy / h

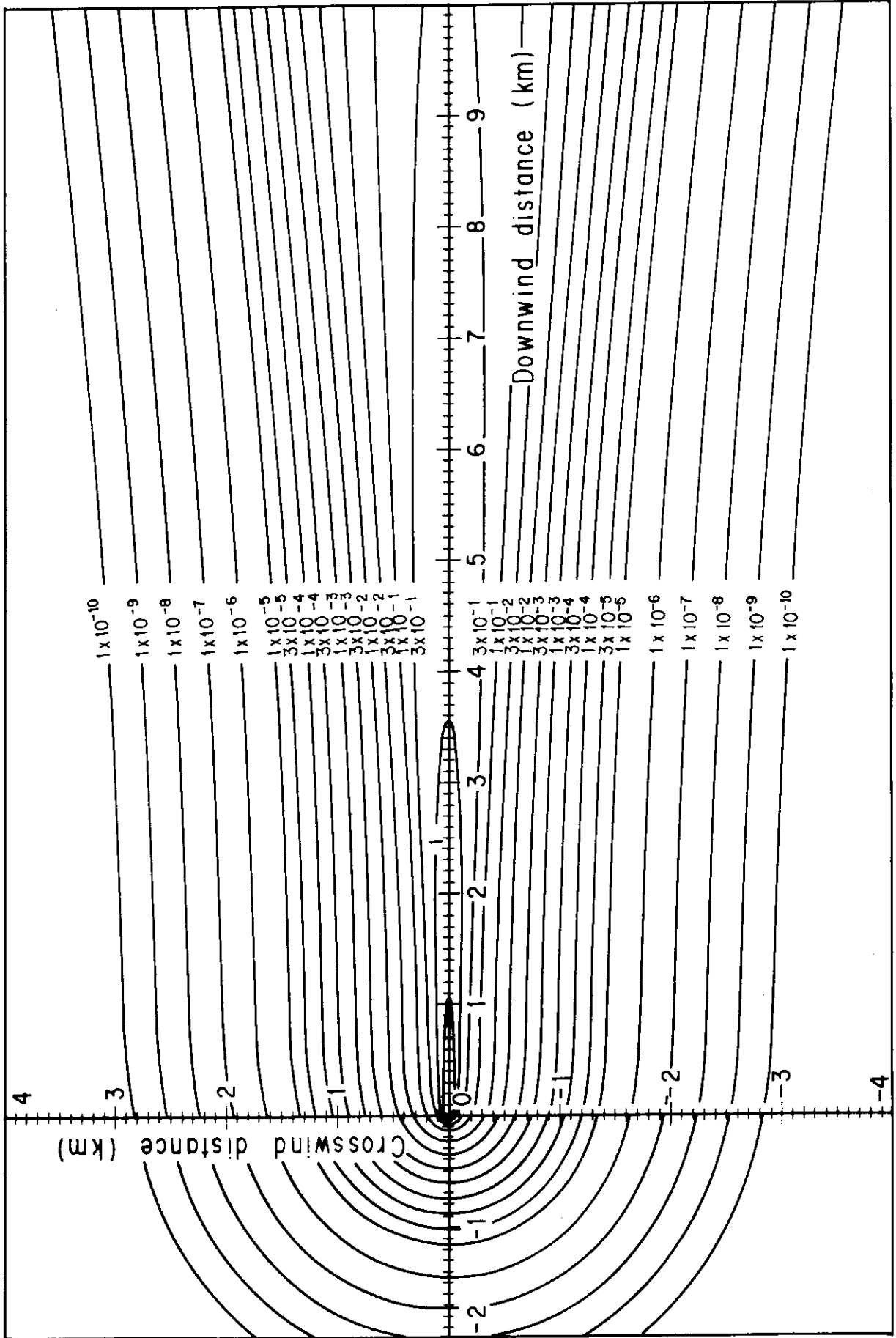


scale : 1 / 25000

Fig. 4-2-5 (A) Isopleths of surface air absorbed dose rate

Q : 1 GBq/h Stack height : 40 m
 E : 1 MeV/dis Stability : E
 U : 1 m/s

unit : nGy / h

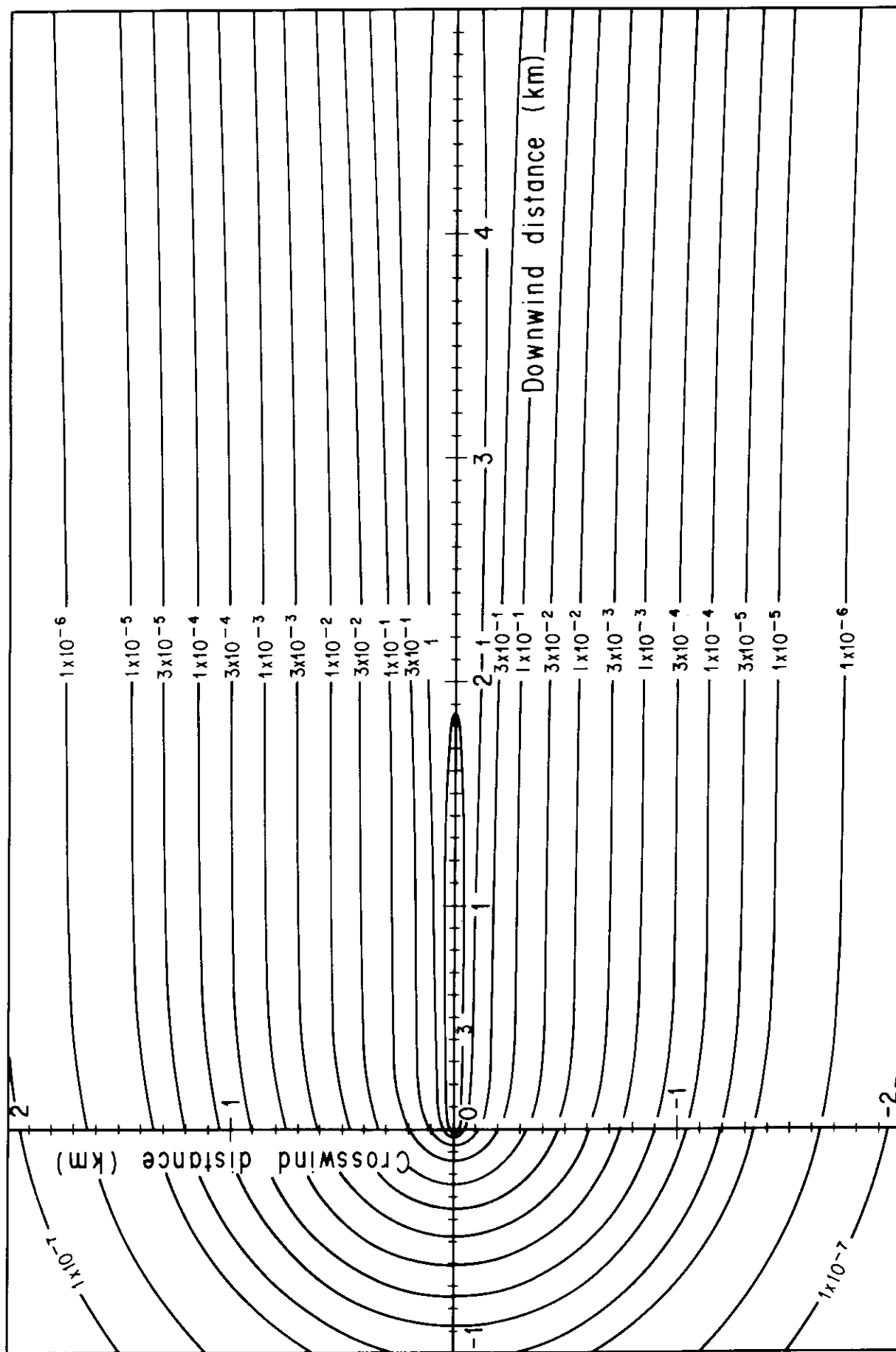


scale : 1 / 50000

Fig.4-2-5 (B) Isopleths of surface air absorbed dose rate

Q : 1 Gbq/h Stack height : 10 m
 E : 1 MeV/dis Stability : E
 U : 1 m/s

unit : nGy / h



Q : 1 GBq/h Stack height : 10m
 E : 1 MeV/dis Stability : F
 U : 1 m/s

scale : 1/25000

Fig. 4-2-6 (A) Isopleths of surface air absorbed dose rate

unit : nGy/h

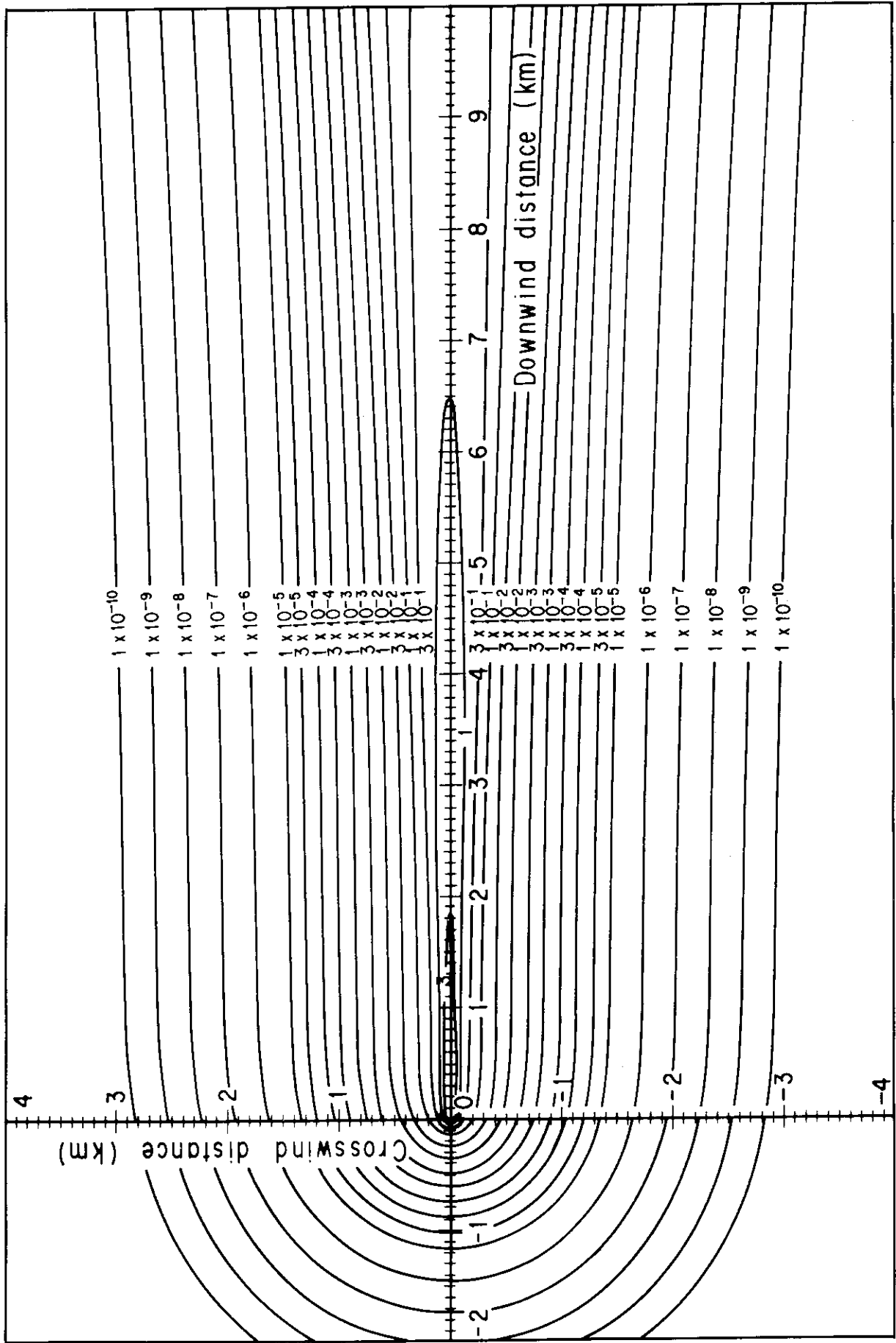
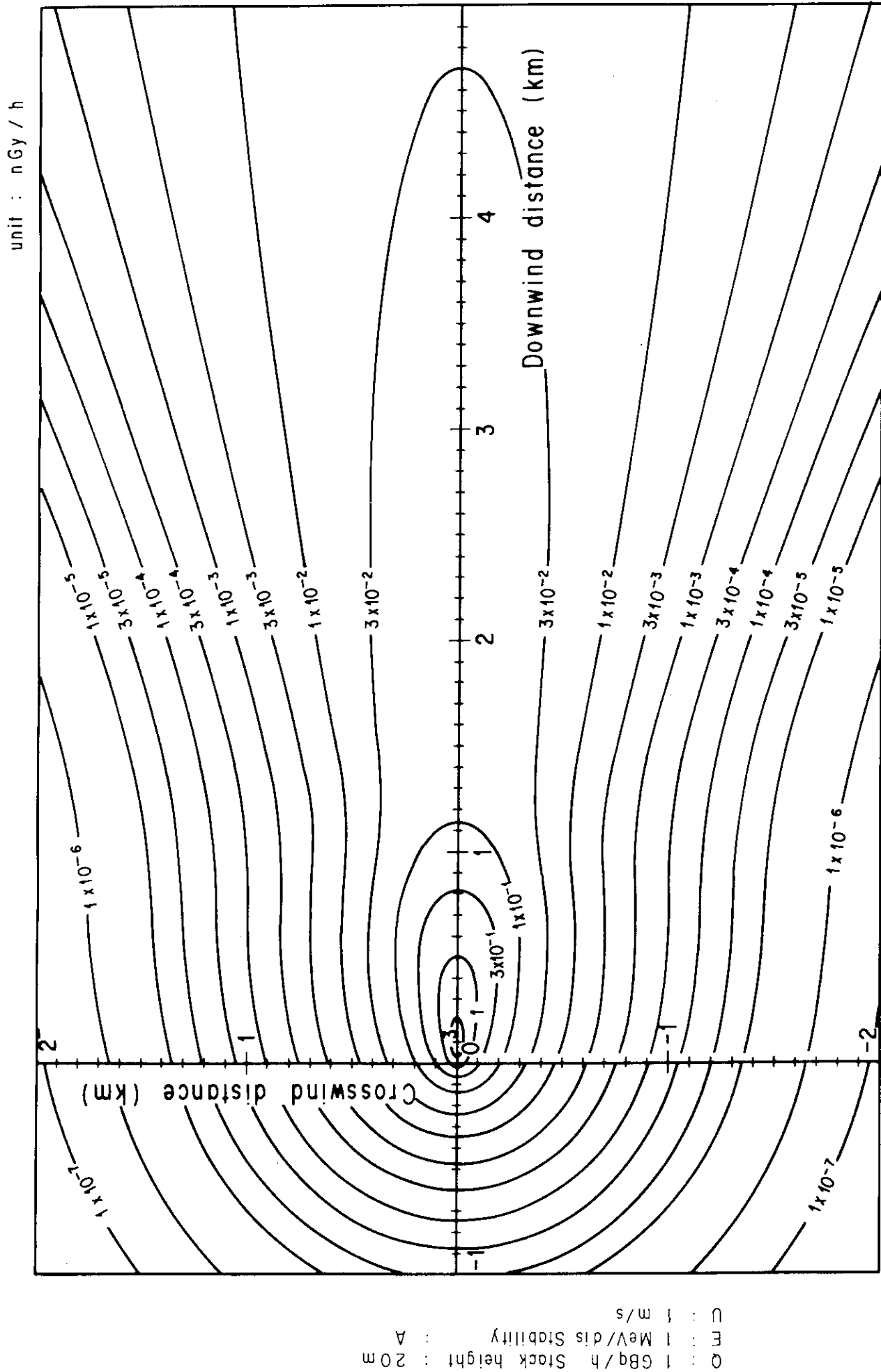


Fig.4-2-6 (B) Isopleths of surface air absorbed dose rate

scale : 1/50000

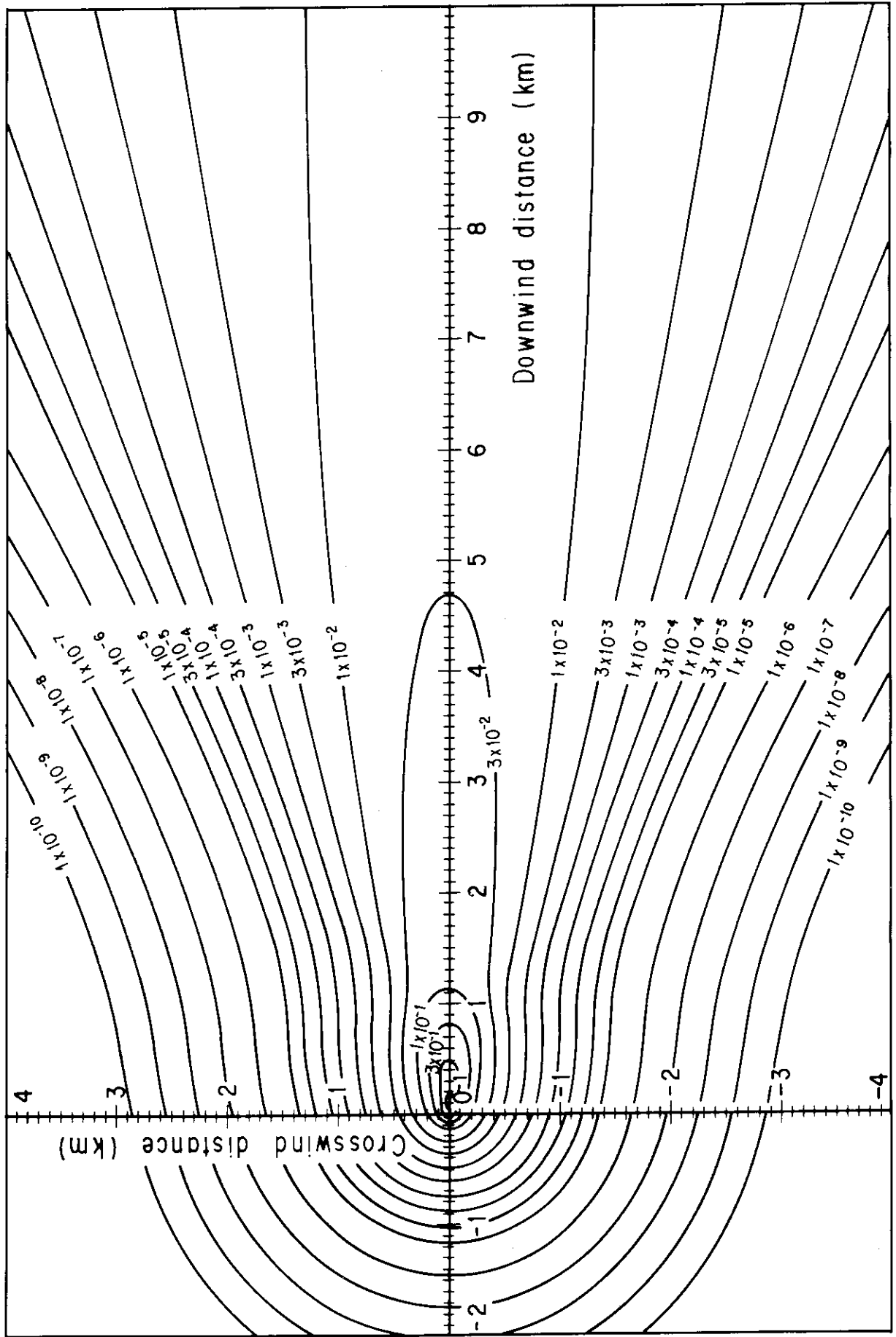
Q : 1 GBq/h Stack height : 10 m
E : 1 MeV/ds Stability : F
U : 1 m/s



scale : 1 / 25000

Fig. 4-3-1 (A) Isopleths of surface air absorbed dose rate

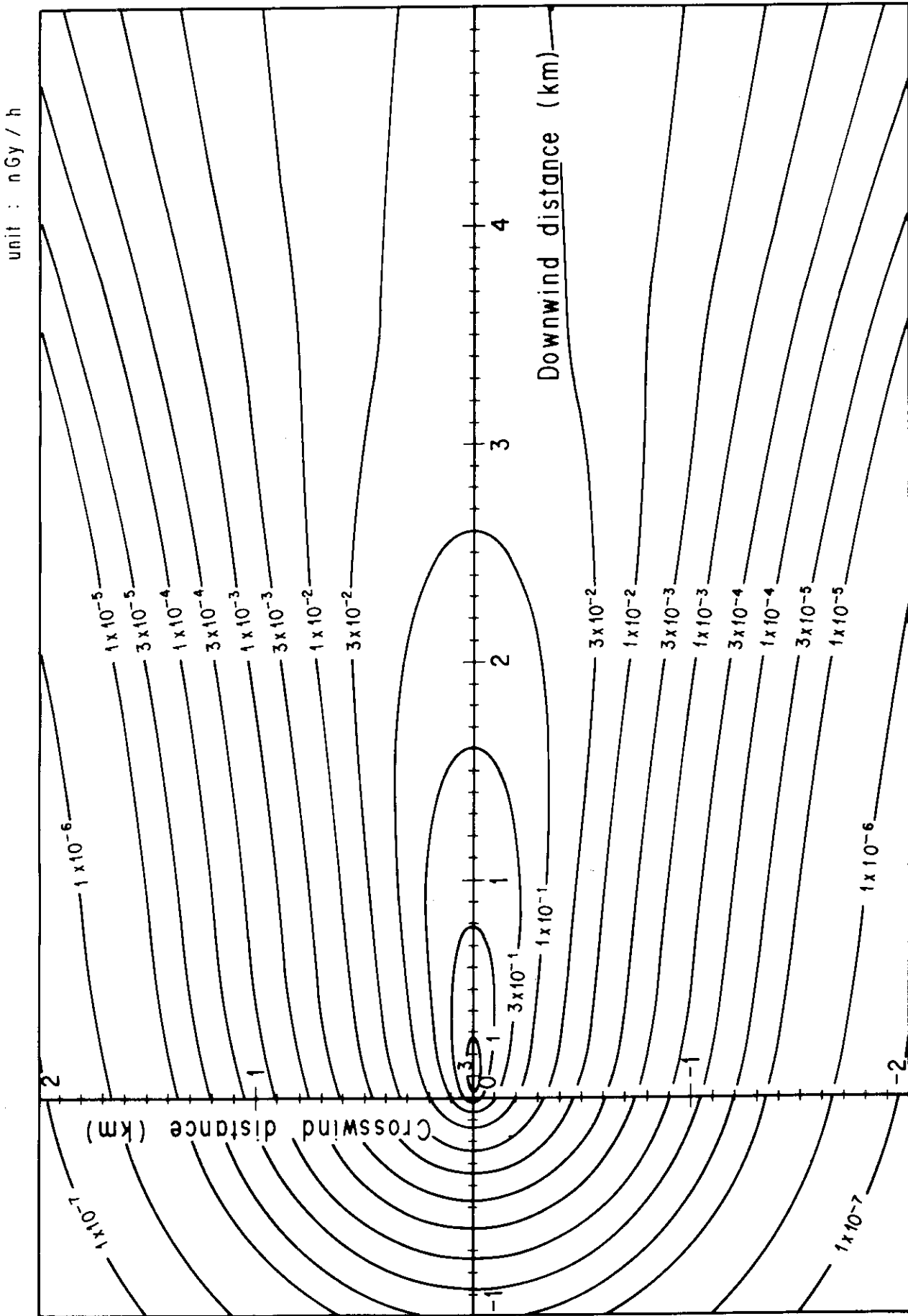
unit : nGy / h



scale : 1 / 50000

Fig.4-3-1 (B) Isopleths of surface air absorbed dose rate

Q : 1 GBq/h Stack height : 20 m
 E : 1 MeV/dis Stability : A
 U : 1 m/s

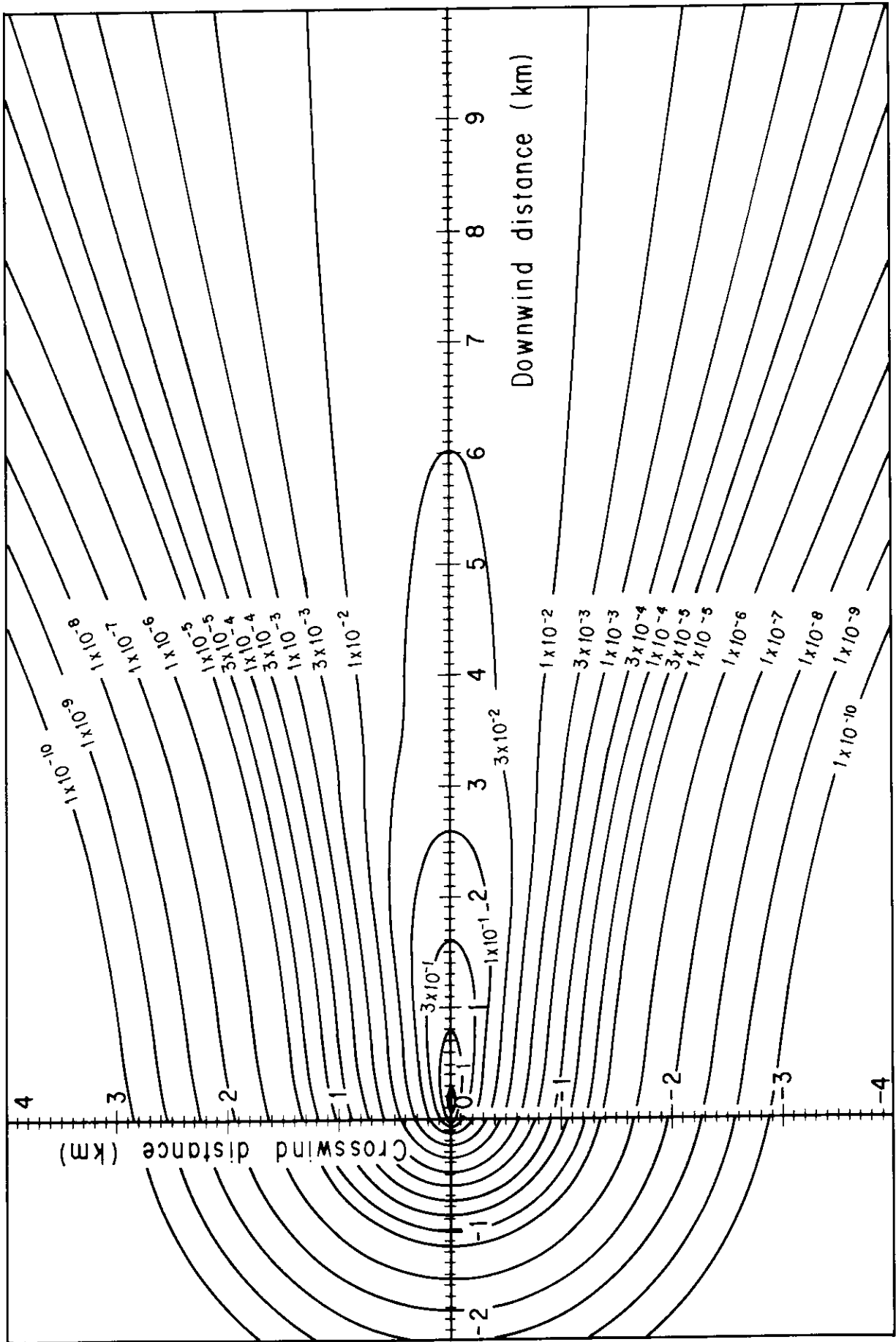


scale : 1/25000

Fig.4-3-2 (A) Isopleths of surface air absorbed dose rate

Q : 1 GBq/h Stack height : 20 m
 E : 1 MeV/dis Stability : B
 U : 1 m/s

unit : nGy/h

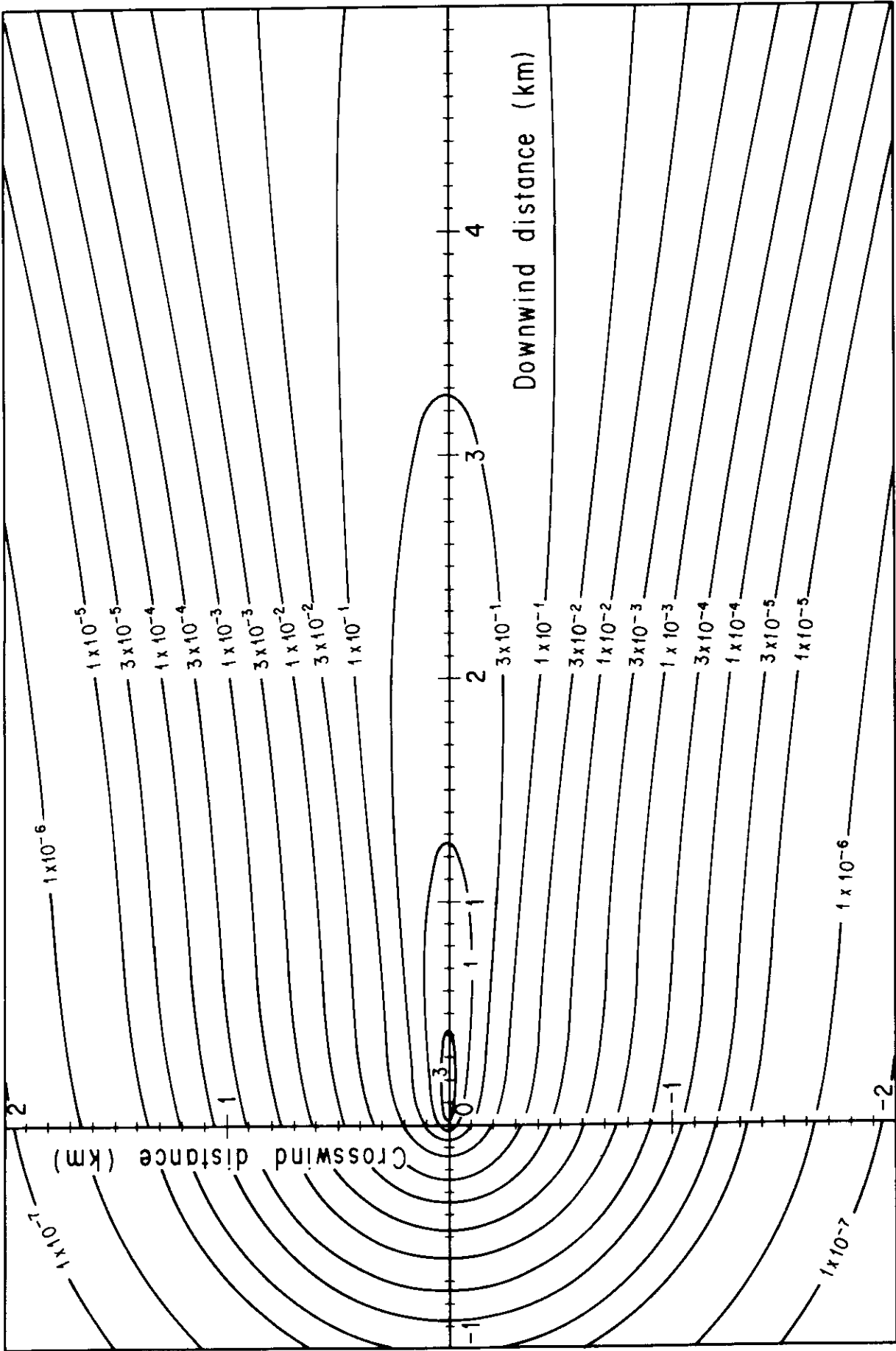


scale : 1/50000

Fig.4-3-2 (B) Isopleths of surface air absorbed dose rate

Q : 1 GBq/h Stack height : 20 m
 E : 1 MeV/dis Stability : B
 U : 1 m/s

unit : nGy / h



scale : 1 / 25000

Fig. 4-3-3 (A) Isopleths of surface air absorbed dose rate

Q : 1 GBq/h Stack height : 20m
 E : 1 MeV/dis Stability : C
 U : 1 m/s

unit : nGy / h

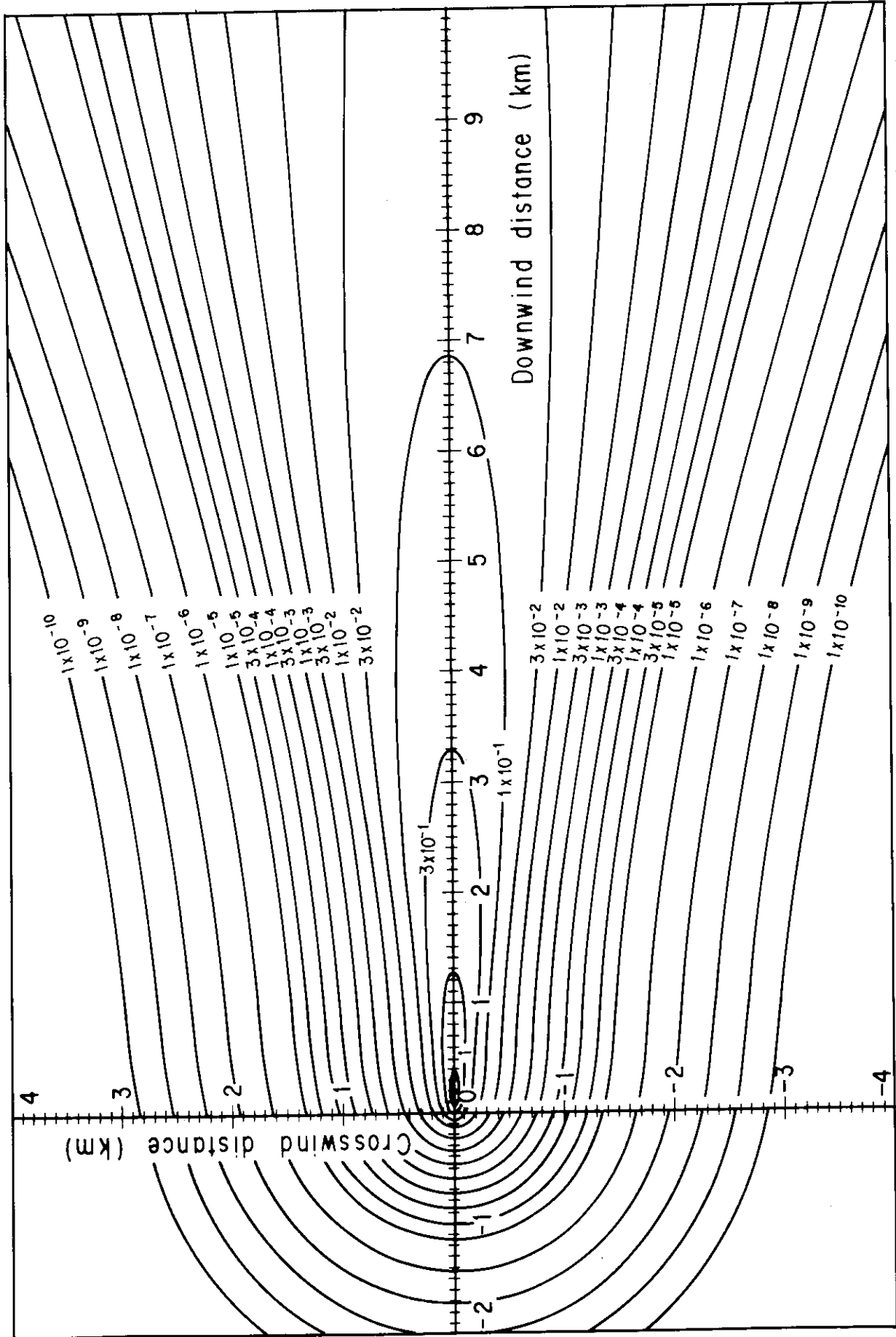
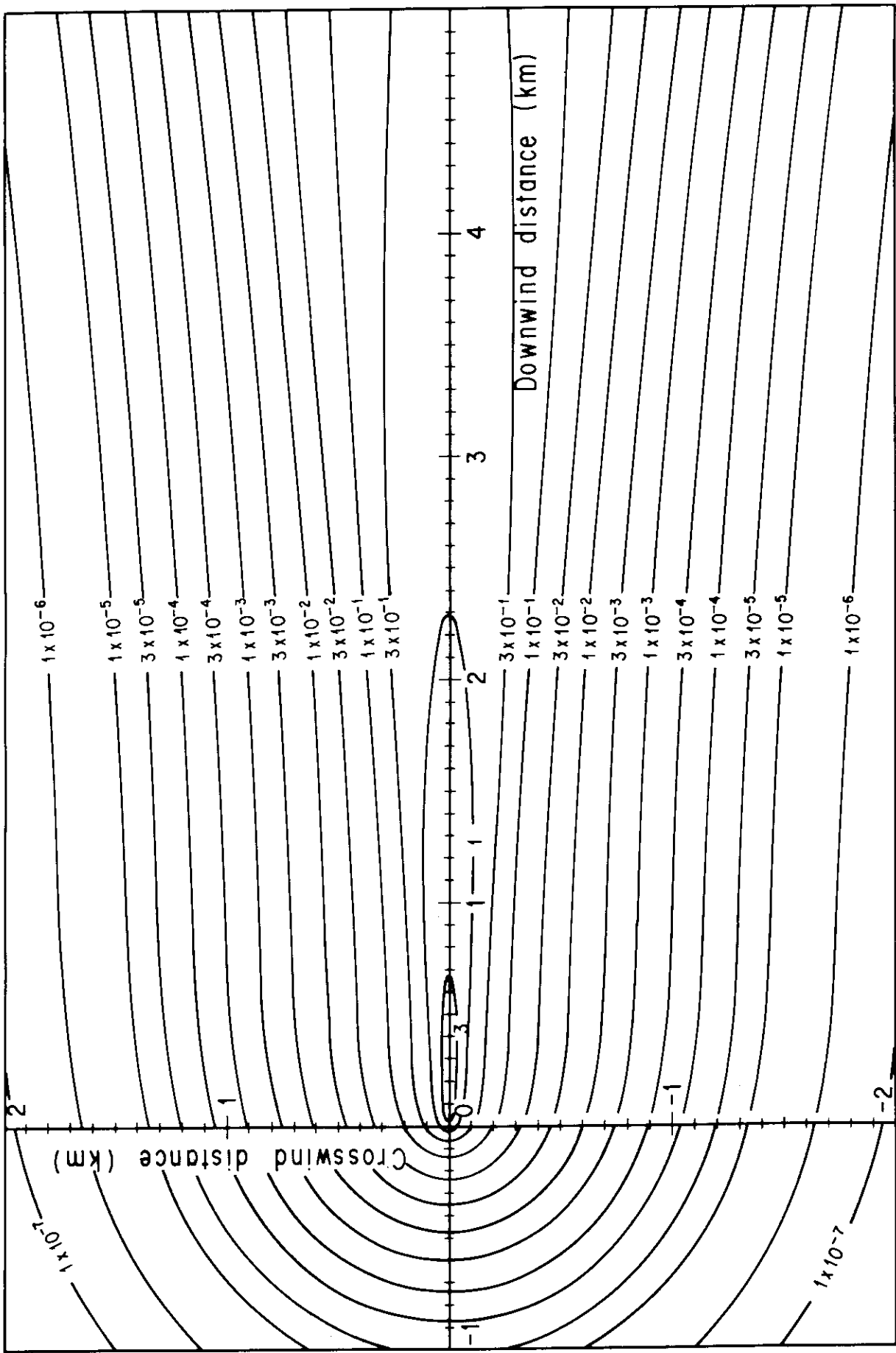


Fig.4-3-3 (B) Isopleths of surface air absorbed dose rate

unit : nGy / h

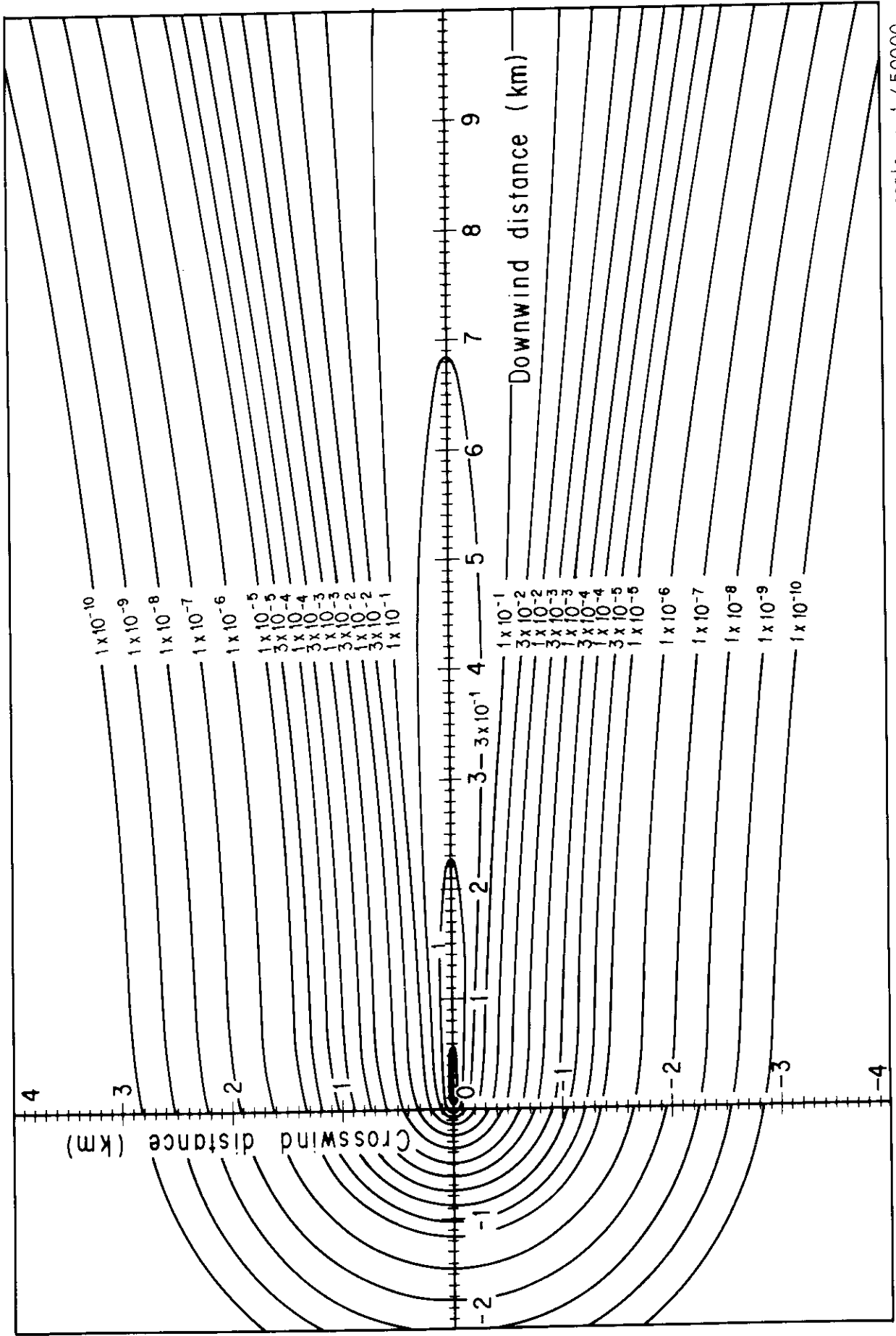


scale : 1 / 25000

Fig. 4-3-4 (A) Isopleths of surface air absorbed dose rate

Q : 1 GBq/h Stack height : 20 m
 E : 1 MeV/dis Stability : D
 U : 1 m/s

unit : nGy / h

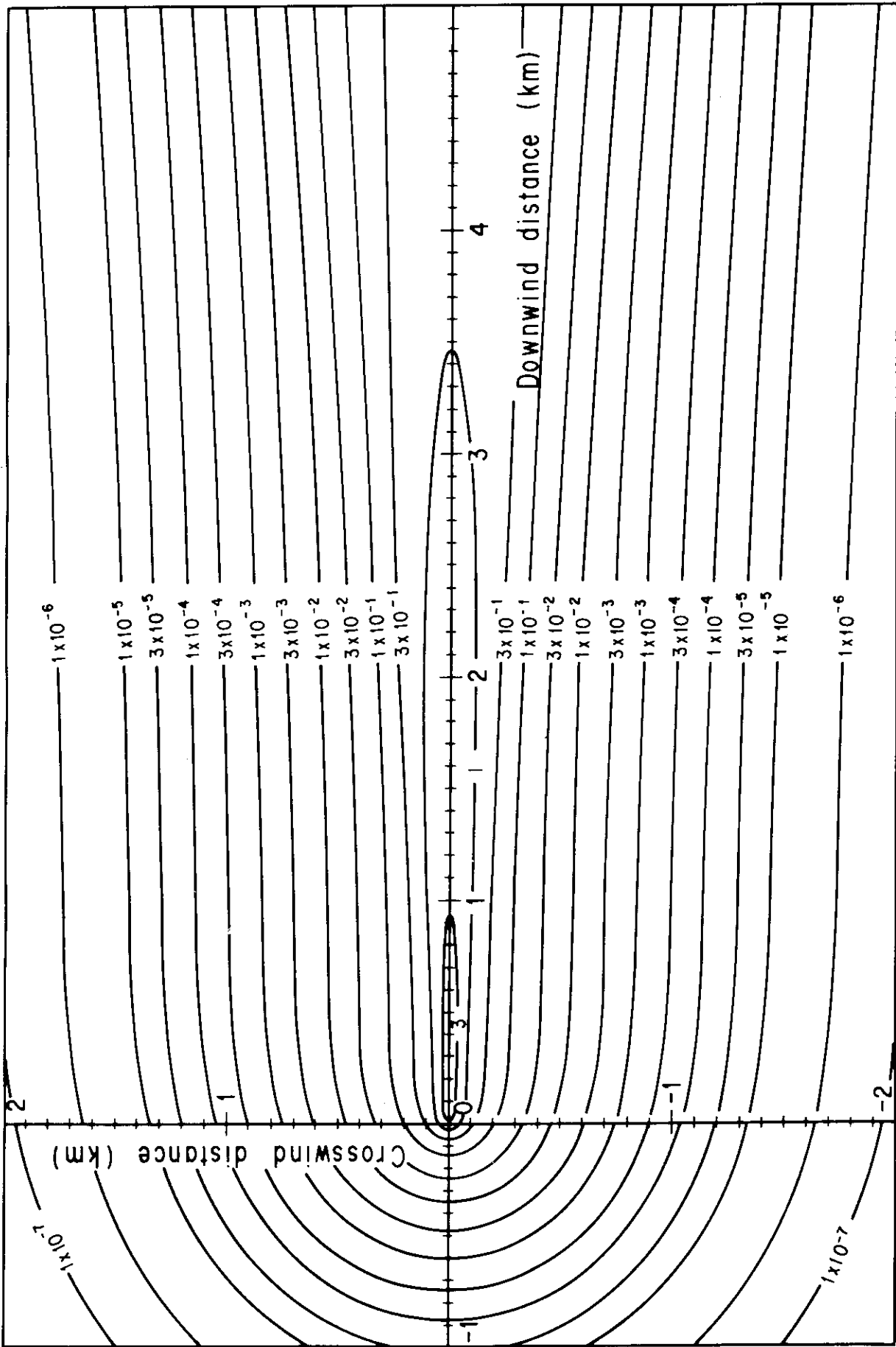


scale : 1 / 50000

Fig. 4-3-4 (B) Isopleths of surface air absorbed dose rate

Q : 1 GBq/h Stack height : 20 m
 E : 1 MeV/ds Stability : D
 U : 1 m/s

unit : nGy / h

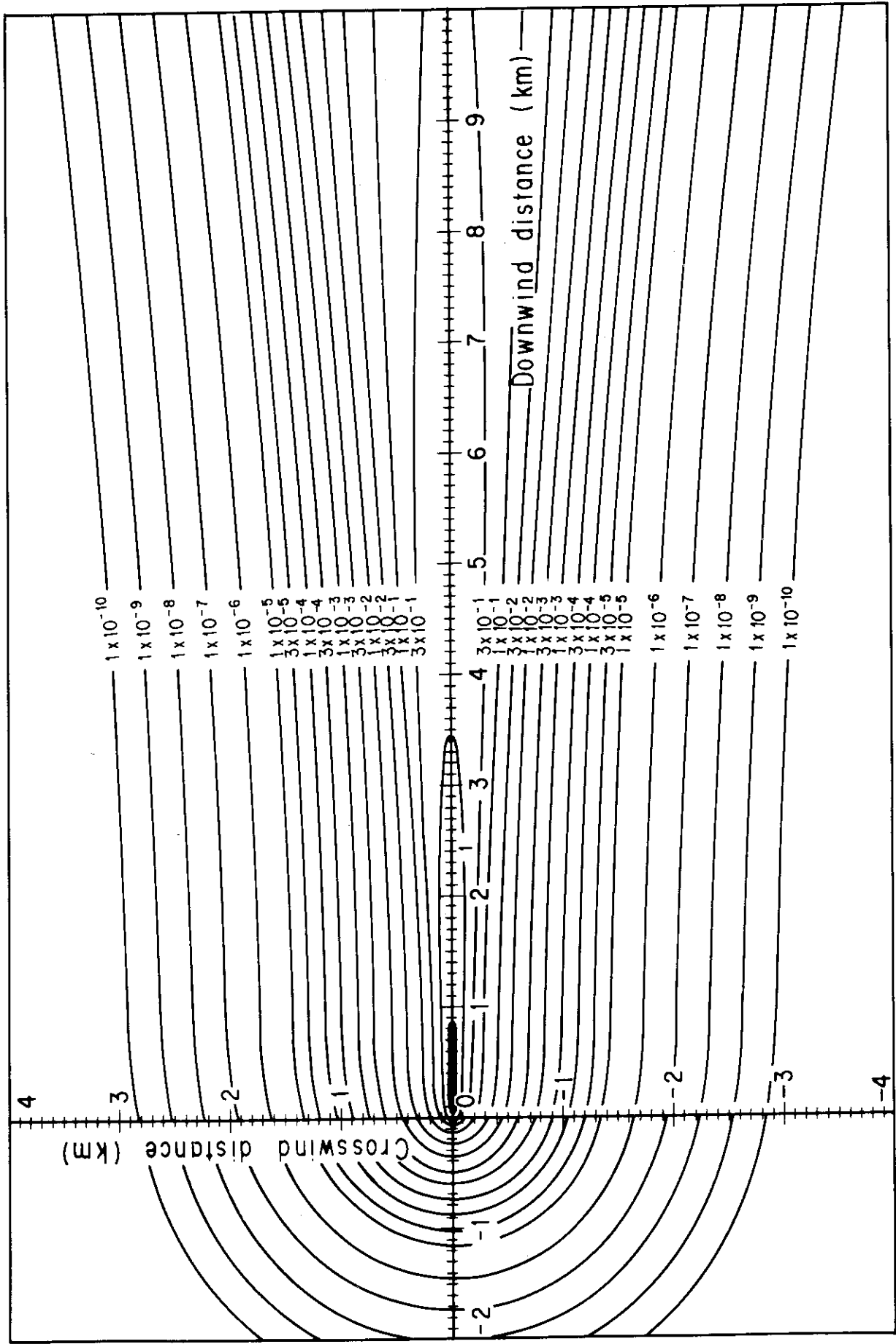


Q : 1 GBq/h Stack height : 20 m
 E : 1 MeV/dis Stability : E
 U : 1 m/s

scale : 1/25000

Fig. 4-3-5 (A) Isopleths of surface air absorbed dose rate

unit : nGy / h

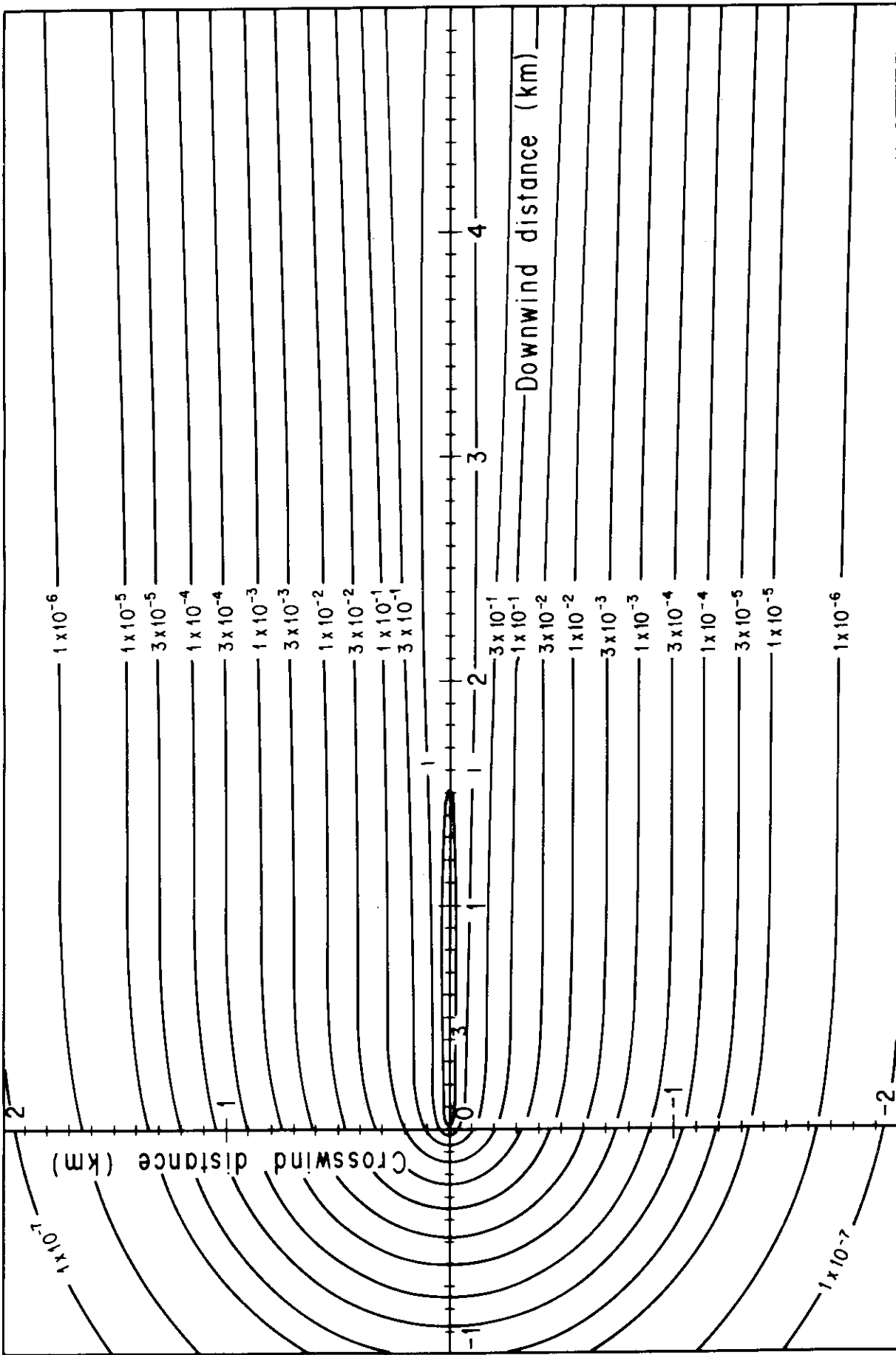


scale : 1/50000

Fig.4-3-5 (B) Isopleths of surface air absorbed dose rate

Q : 1 GBq/h Stack height : 20 m
 E : 1 MeV/dis Stability : E
 U : 1 m/s

unit : nGy / h

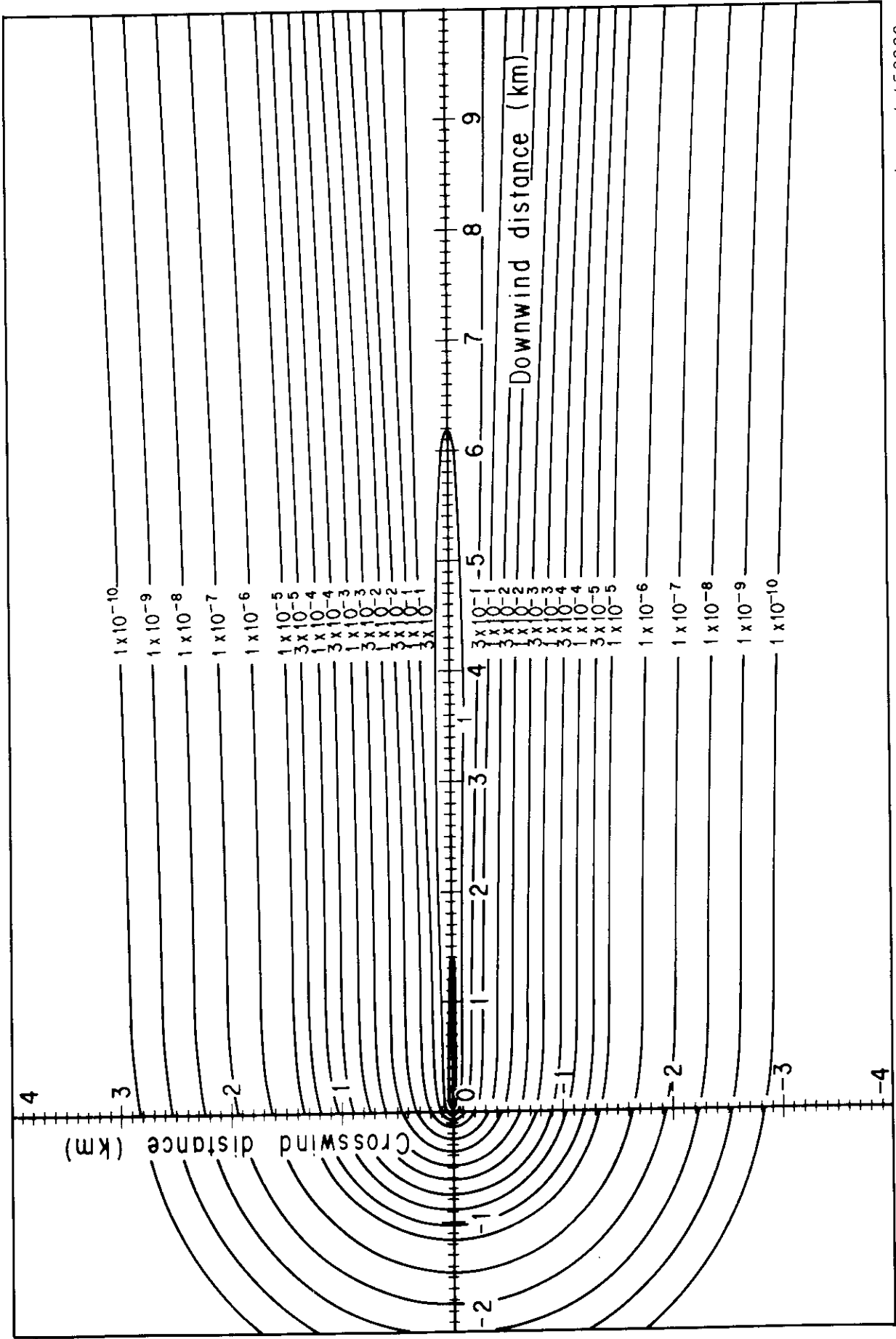


scale : 1/25000

Fig. 4-3-6 (A) Isopleths of surface air absorbed dose rate

Q : 1 Gbq/h Stack height : 20m
 E : 1 MeV/dis Stability : F
 U : 1 m/s

unit : nGy / h

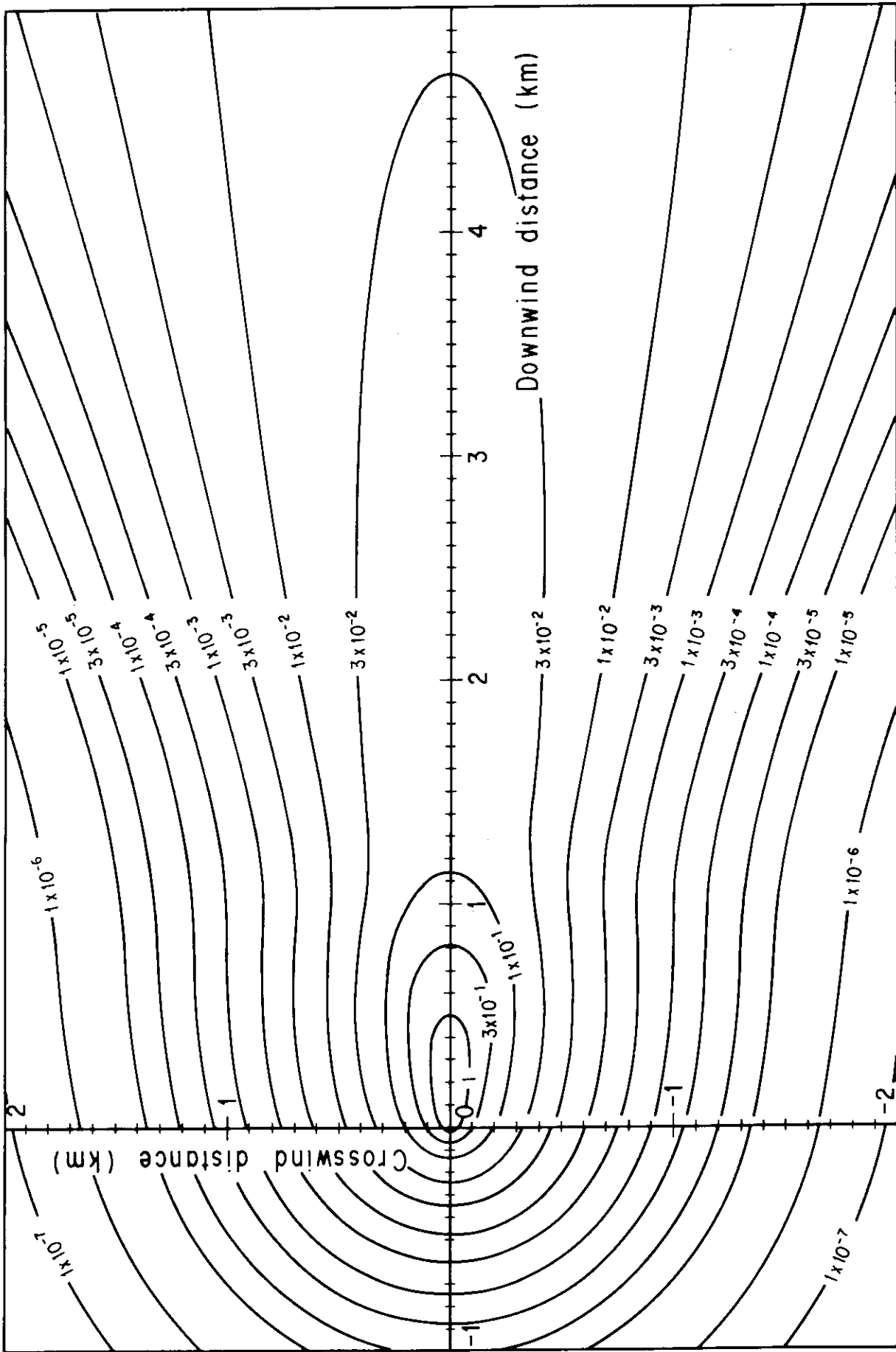


scale : 1 / 50000

Fig.4-3-6 (B) Isopleths of surface air absorbed dose rate

Q : 1 GBq/h Stack height : 20 m
 E : 1 MeV/dis Stability : F
 U : 1 m/s

unit : nGy / h



scale : 1 / 25000

Fig. 4-4-1 (A) Isopleths of surface air absorbed dose rate

Q : 1 GBq/h Stack height : 30m
 E : 1 MeV/dis Stability : A
 U : 1 m/s

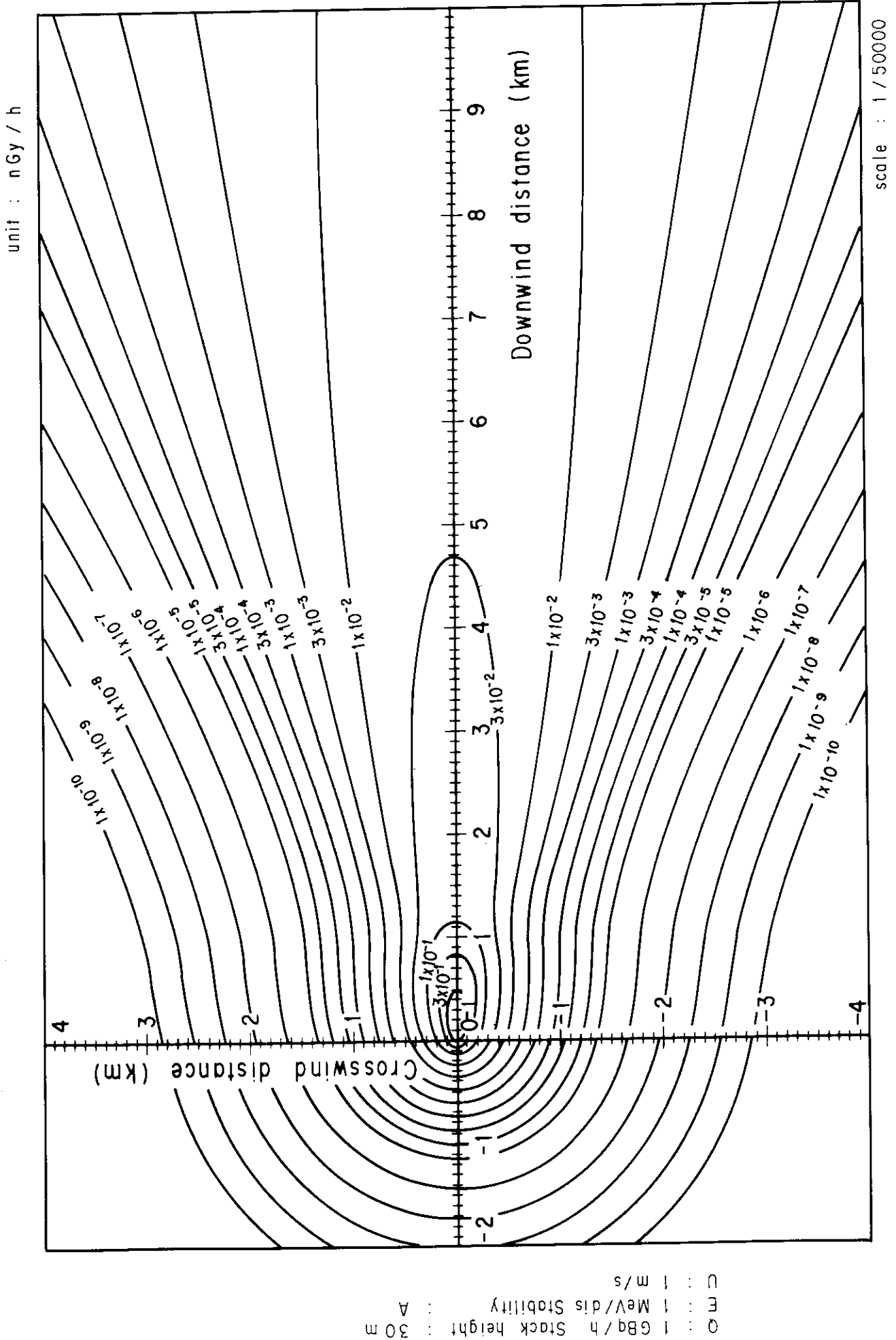
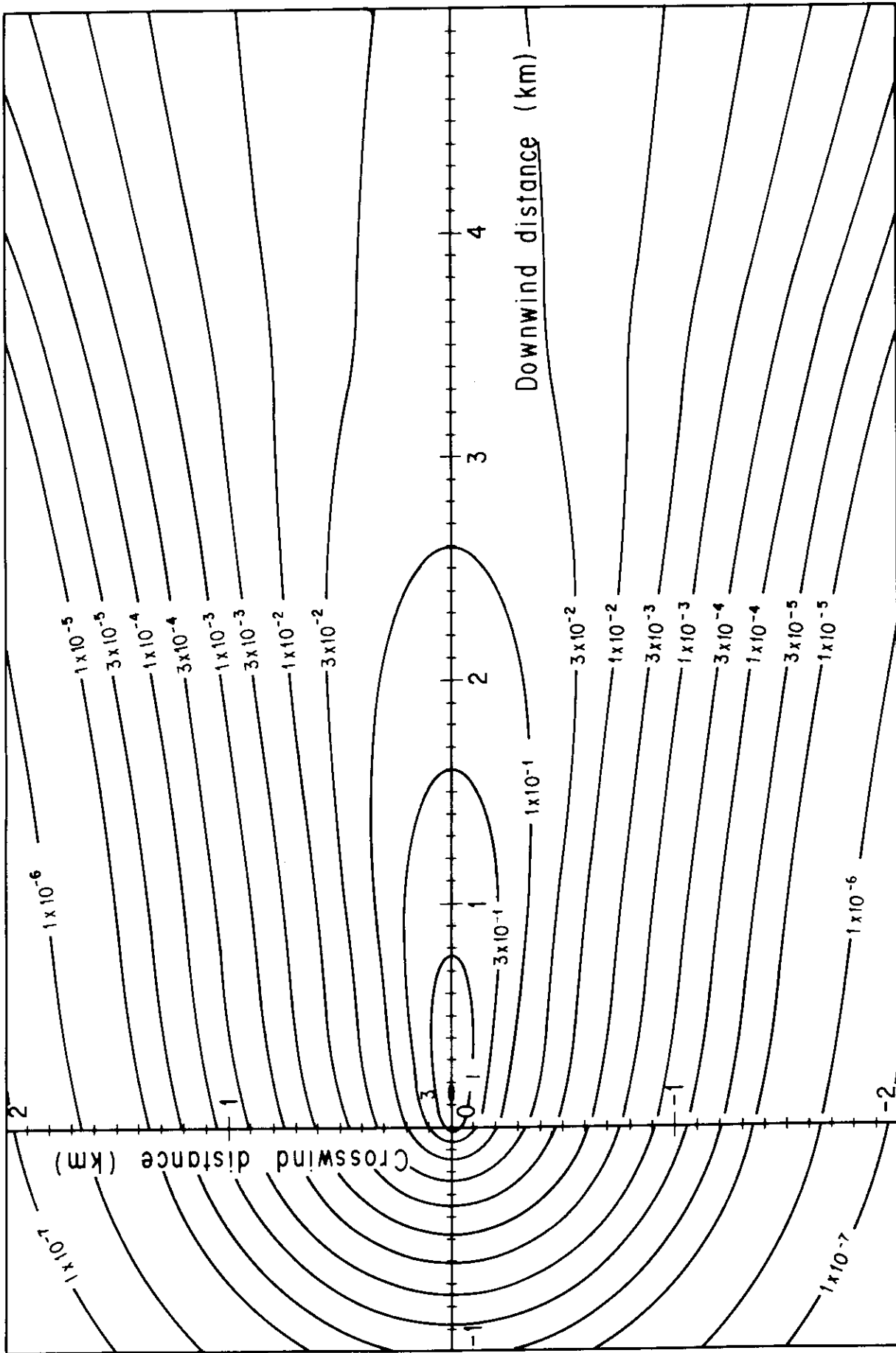


Fig.4-4-1 (B) Isopleths of surface air absorbed dose rate

unit : nGy / h

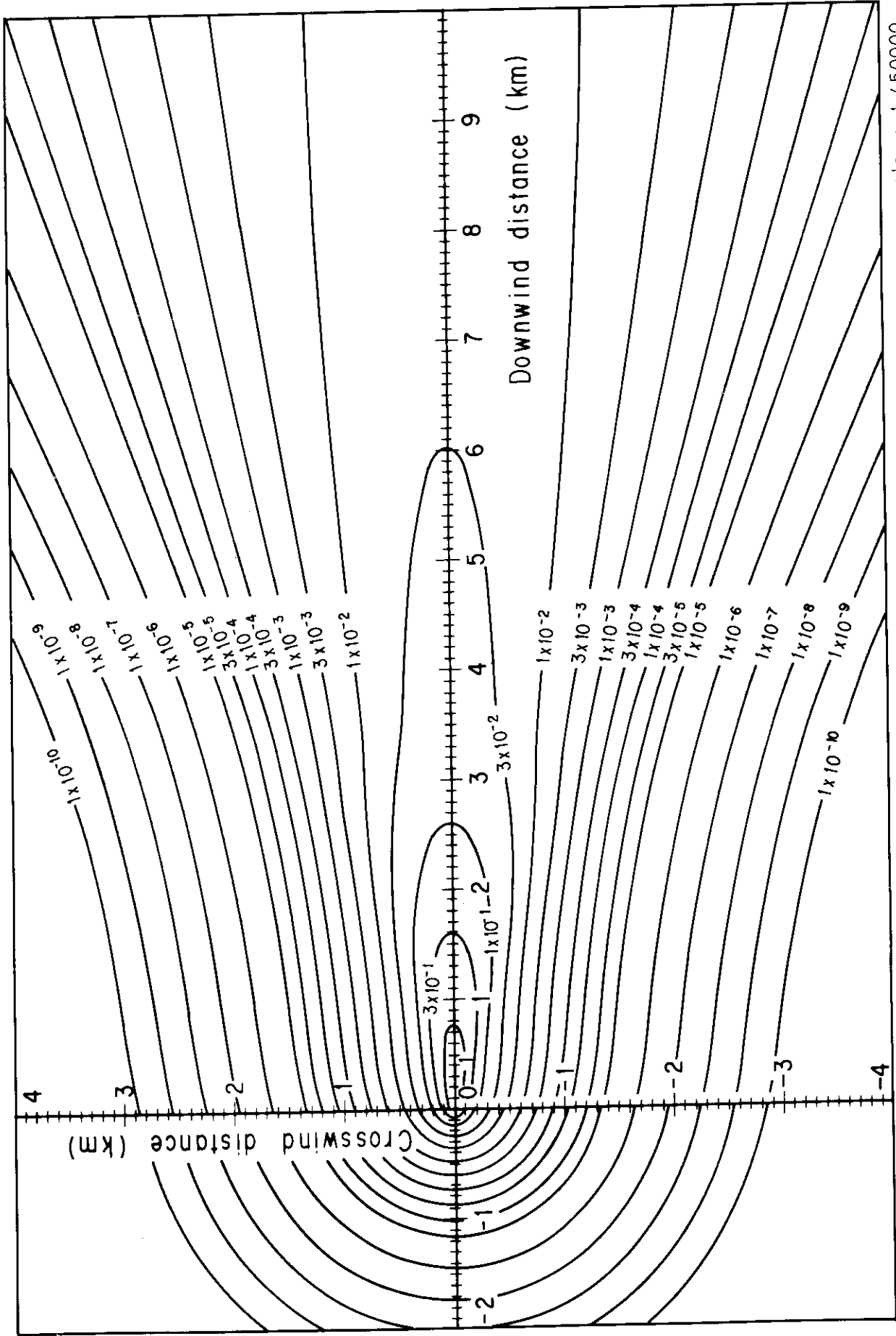


scale : 1 / 25000

Fig.4-4-2 (A) Isopleths of surface air absorbed dose rate

Q : 1 GBq/h Stack height : 30 m
 E : 1 MeV/dis Stability : B
 U : 1 m/s

unit : nGy / h

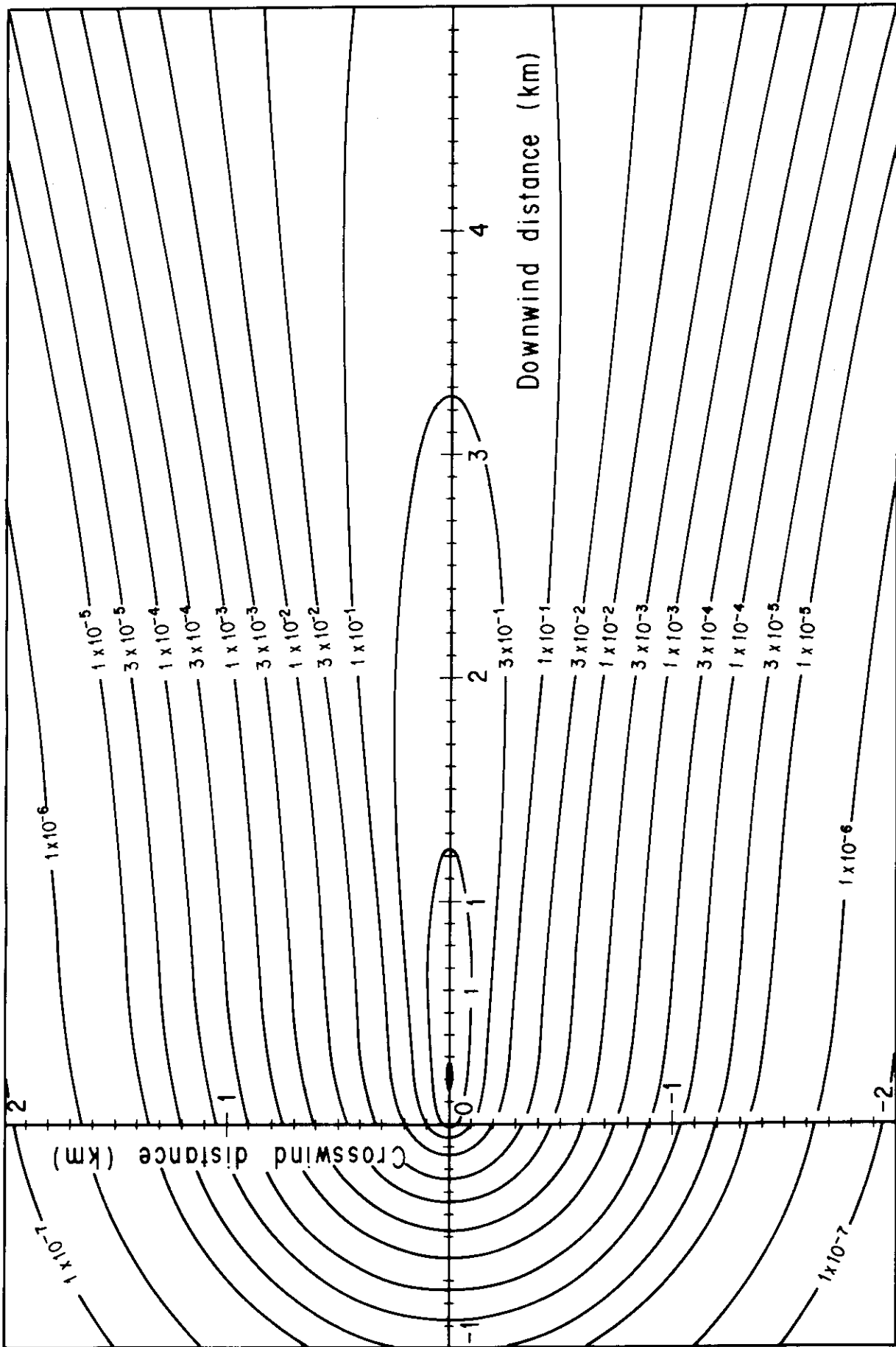


scale : 1 / 50000

Fig.4-4-2 (B) Isopleths of surface air absorbed dose rate

Q : 1 GBq/h Stack height : 30 m
 E : 1 MeV/dis Stability : B
 U : 1 m/s

unit : nGy / h

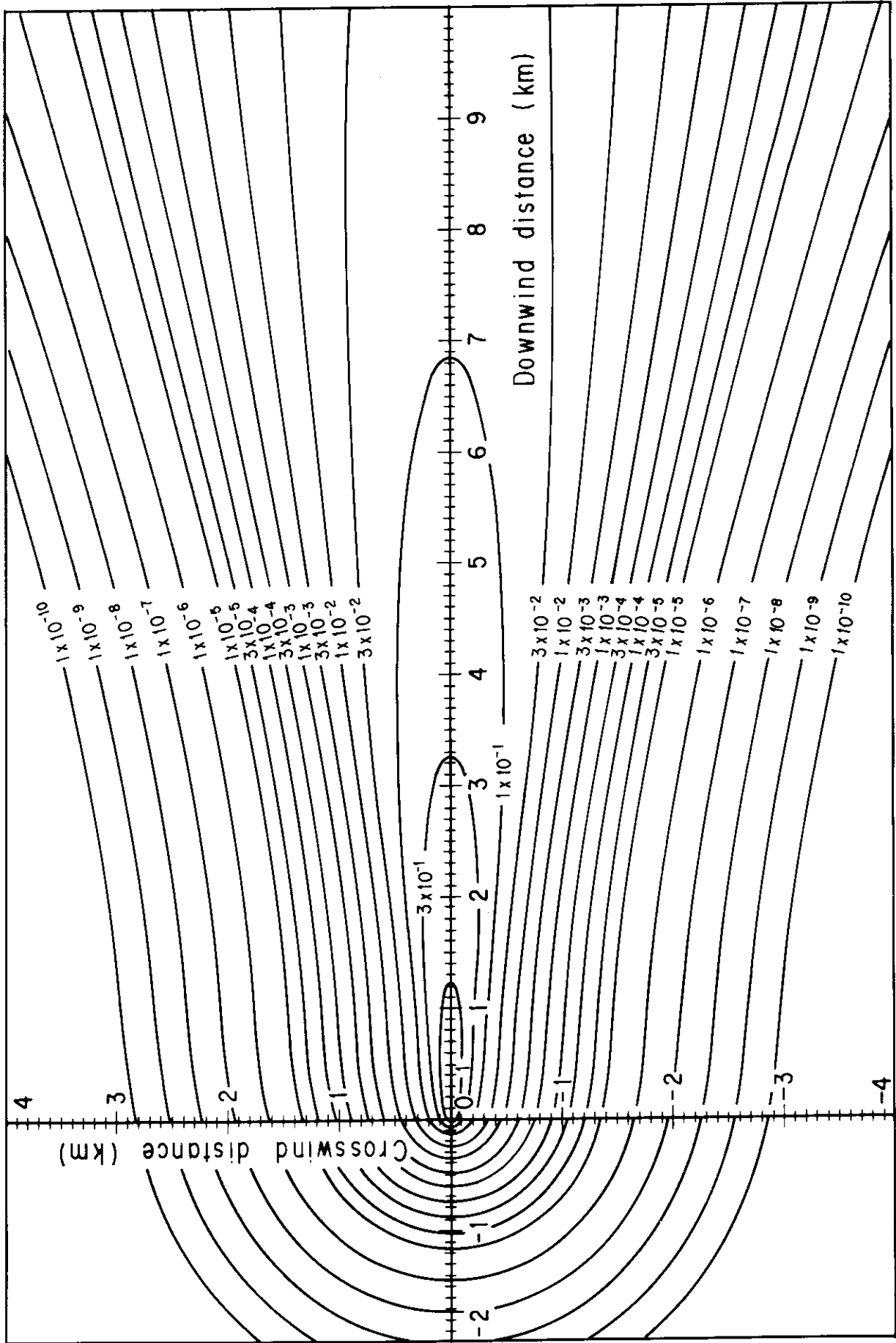


scale : 1 / 25000

Fig. 4-4-3 (A) Isopleths of surface air absorbed dose rate

Q : 1 GBq/h Stack height : 30m
 E : 1 MeV/dis Stability : C
 U : 1 m/s

unit : nGy / h

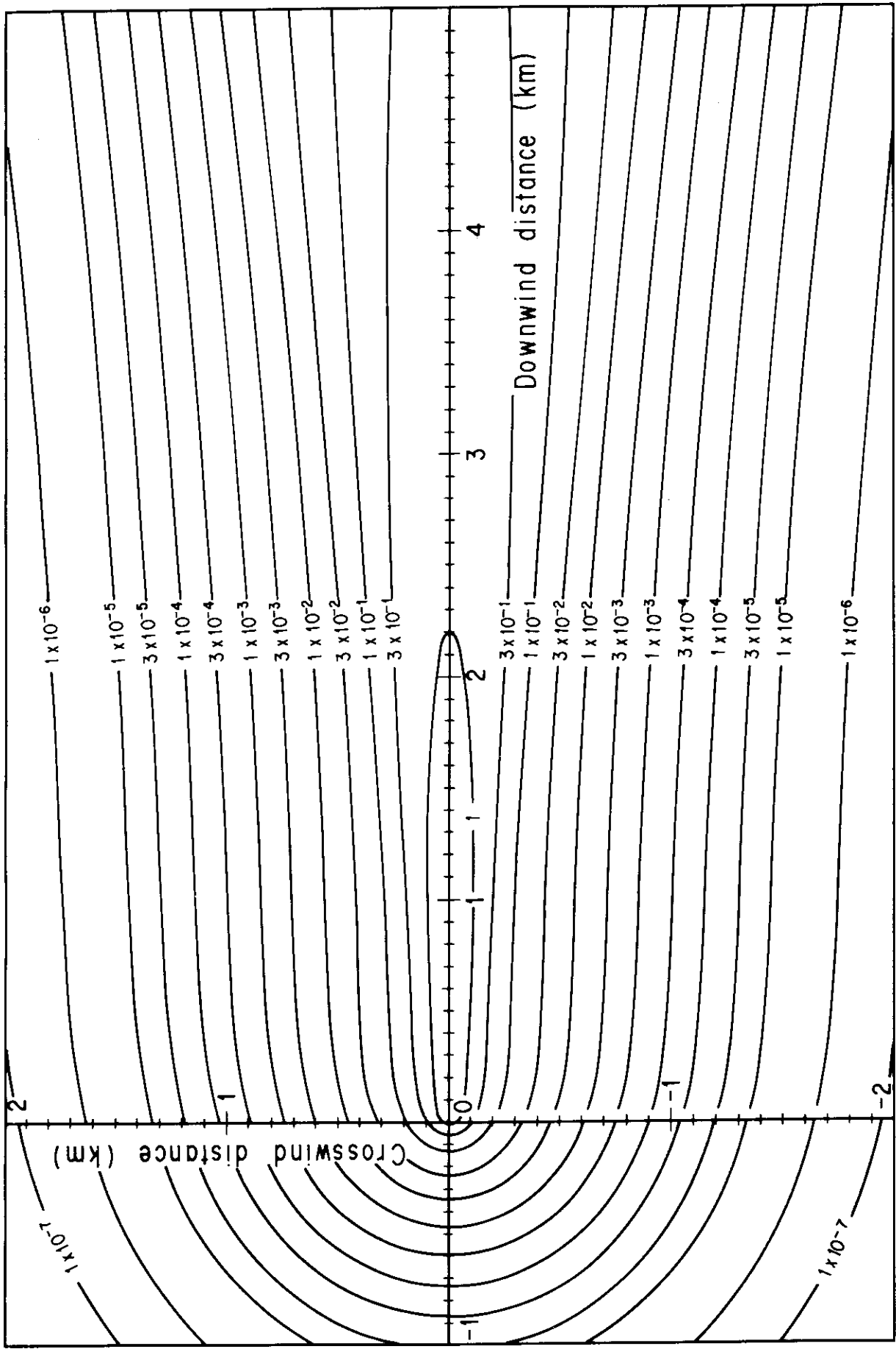


scale : 1 / 50000

Fig.4-4-3 (B) Isopleths of surface air absorbed dose rate

Q : 1 GBq/h Stack height : 30 m
 E : 1 MeV/dis Stability : C
 U : 1 m/s

unit : nGy / h

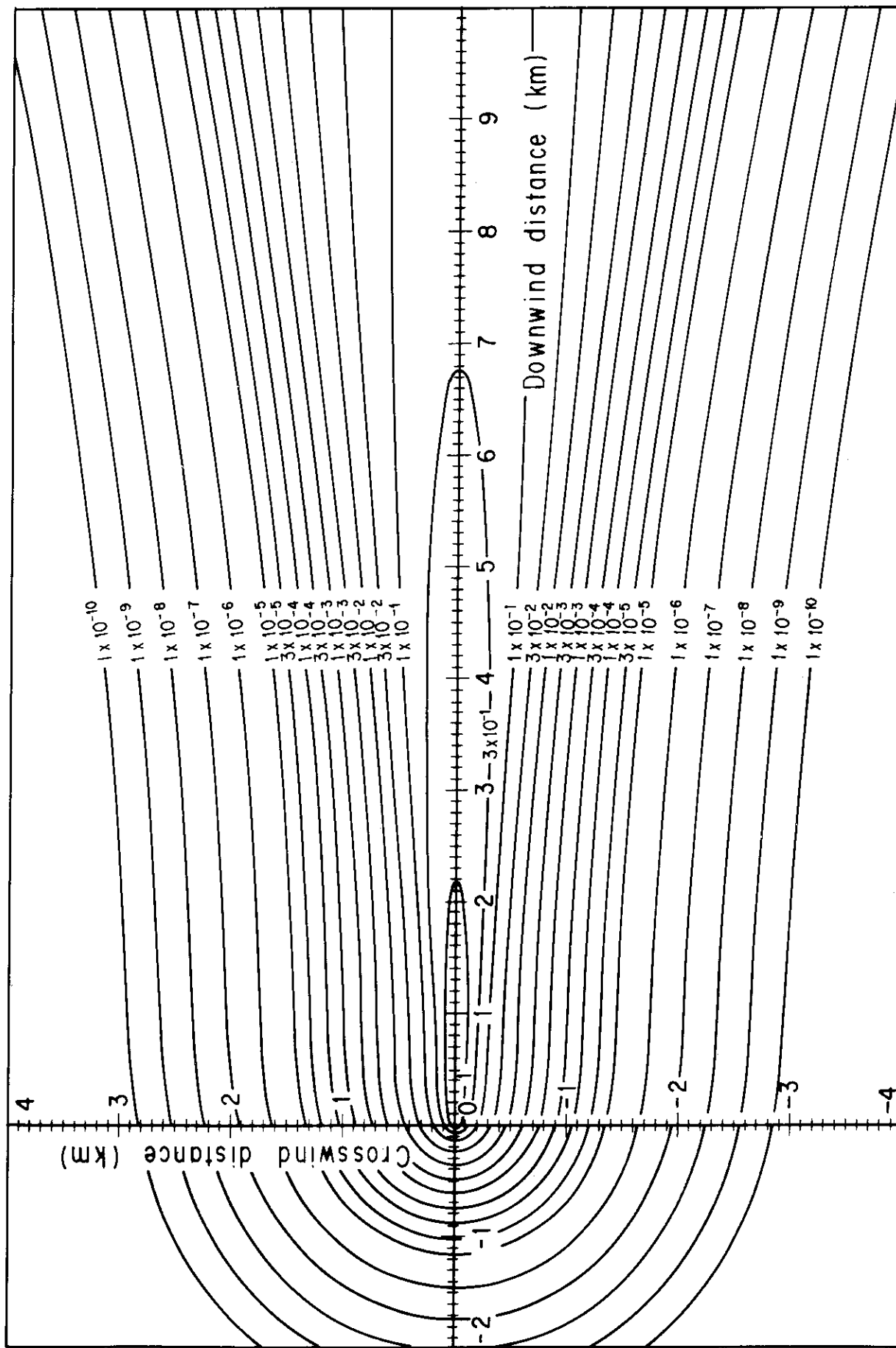


scale : 1 / 25000

Fig. 4-4-4 (A) Isopleths of surface air absorbed dose rate

Q : 1 GBq/h Stack height : 30m
 E : 1 MeV/dis Stability : D
 U : 1 m/s

unit : nGy / h

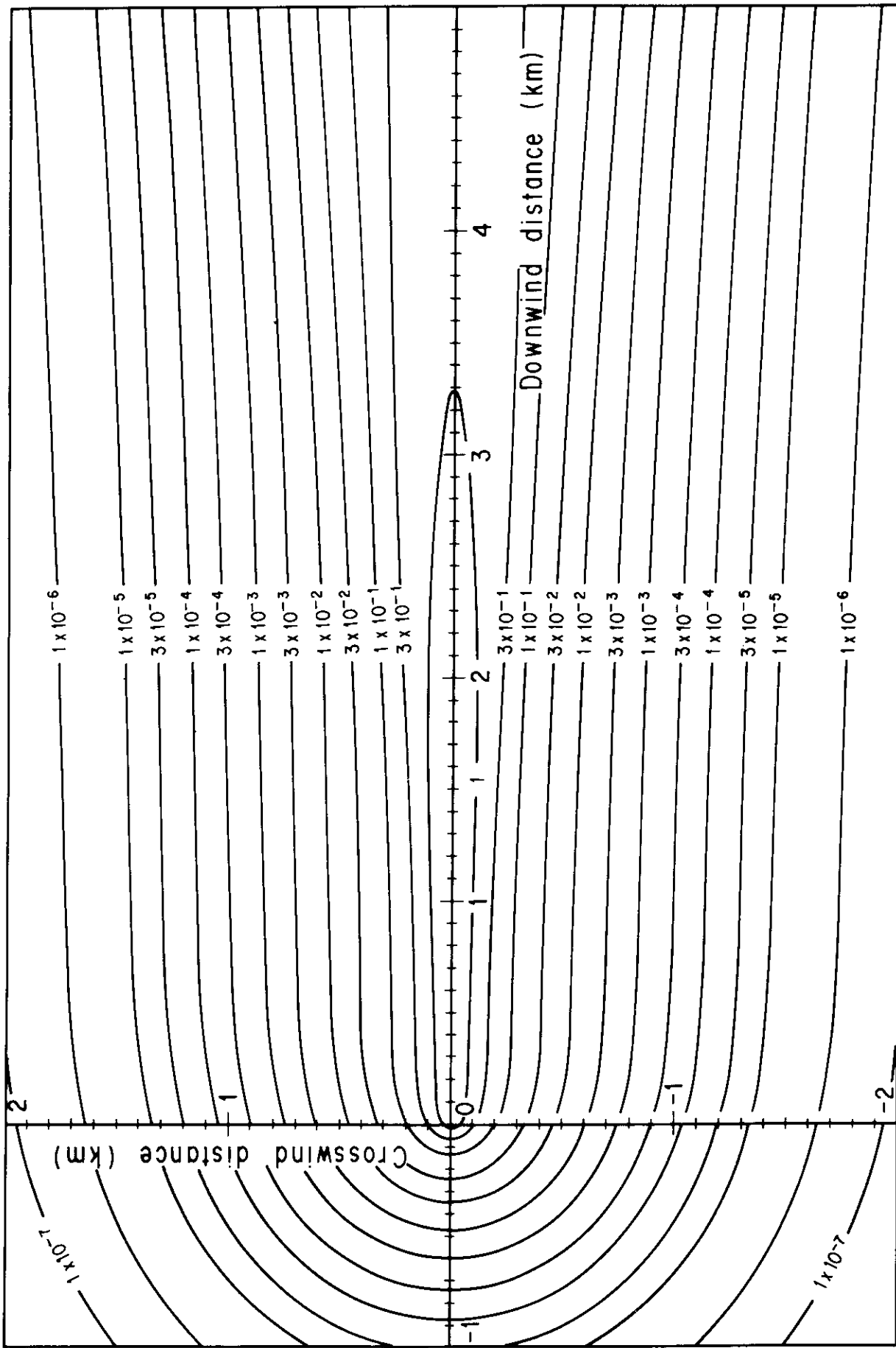


scale : 1 / 50000

Fig.4-4-4 (B) Isopleths of surface air absorbed dose rate

Q : 1 GBq/h Stack height : 30 m
 E : 1 MeV/ds Stability : D
 U : 1 m/s

unit : nGy / h

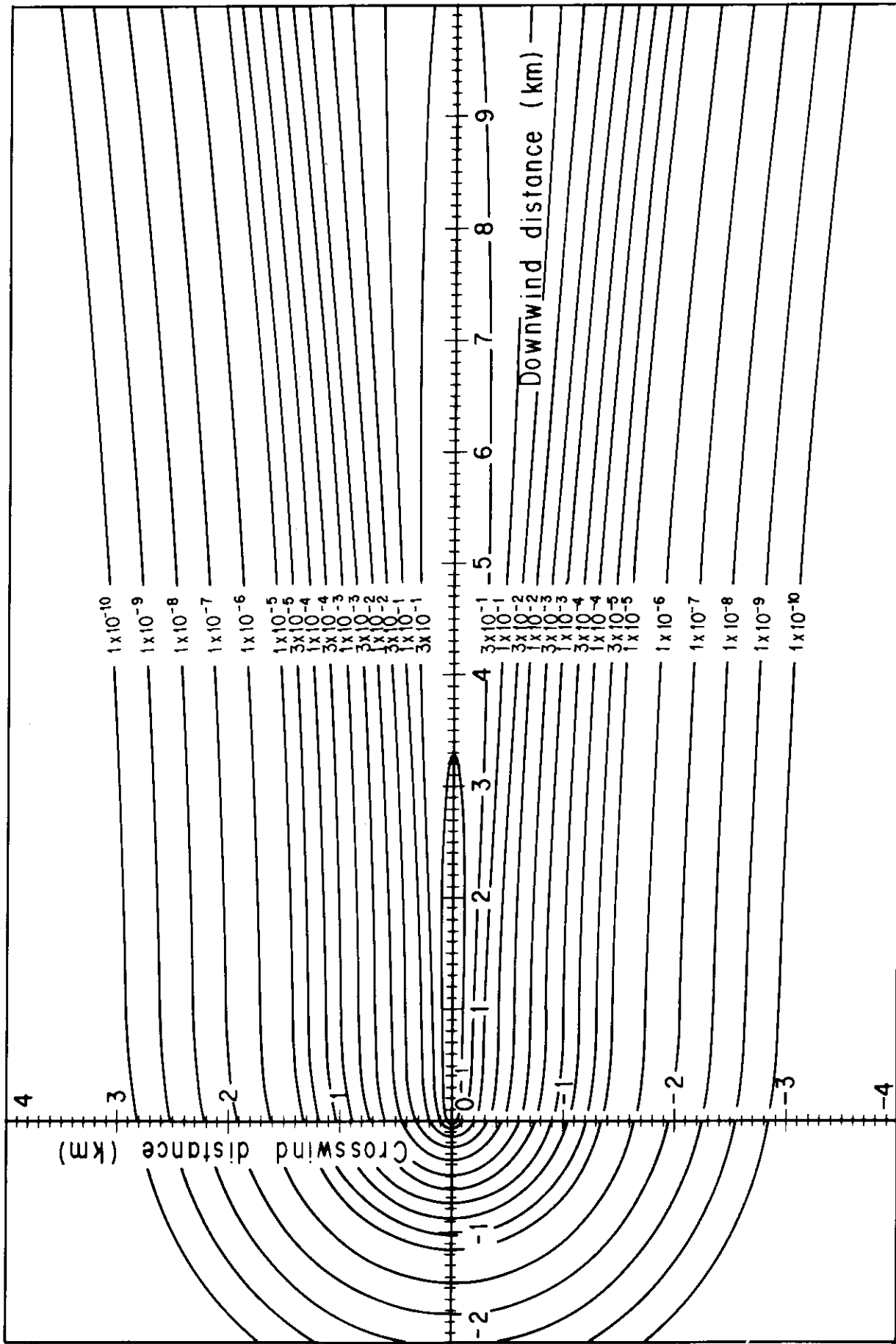


Q : 1 Gbq/h Stack height : 30 m
 E : 1 MeV/dis Stability : E
 U : 1 m/s

scale : 1/25000

Fig. 4-4-5 (A) Isopleths of surface air absorbed dose rate

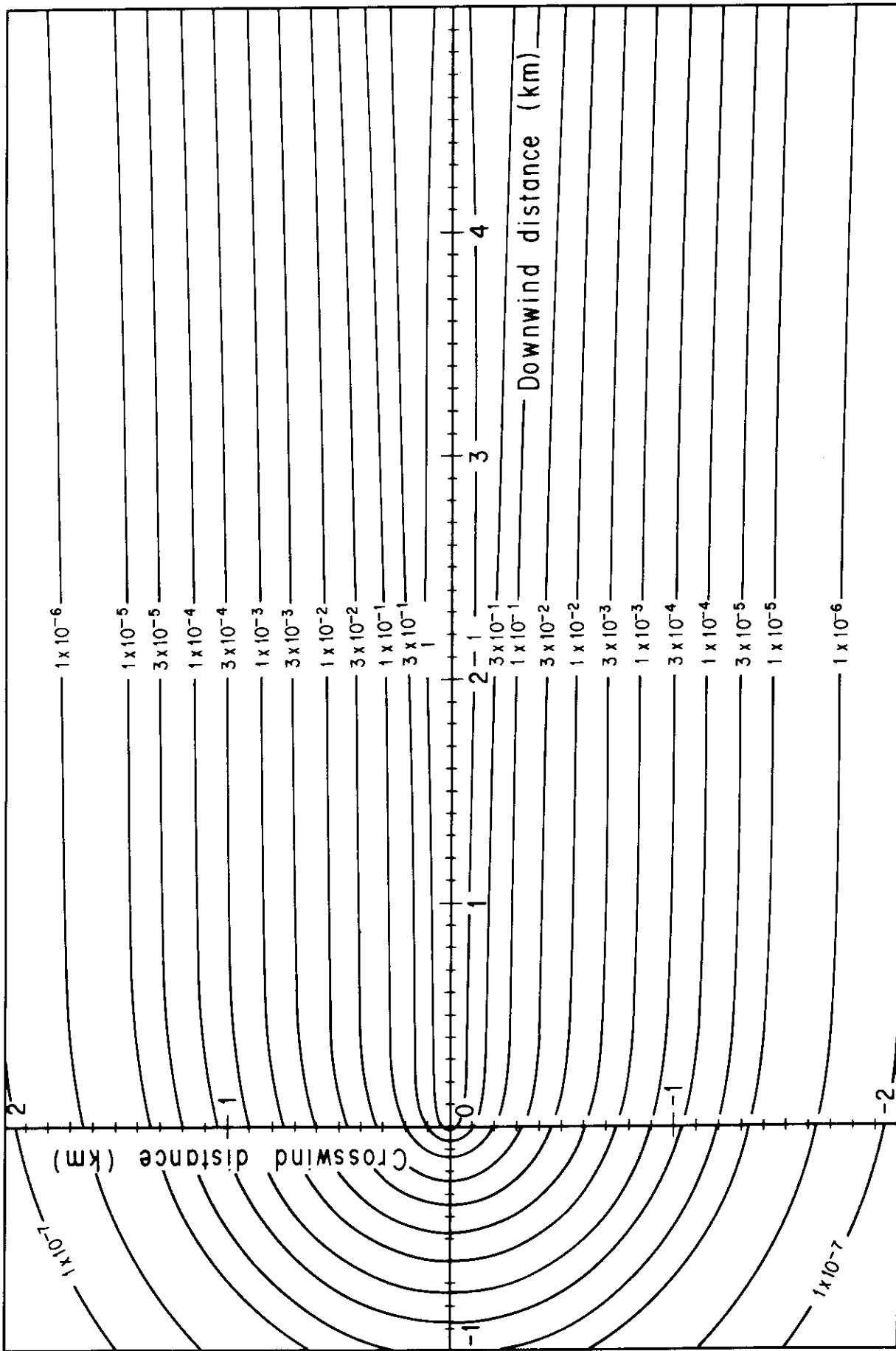
unit : nGy / h



scale : 1 / 50000

Fig.4-4-5 (B) Isopleths of surface air absorbed dose rate

unit : nGy / h

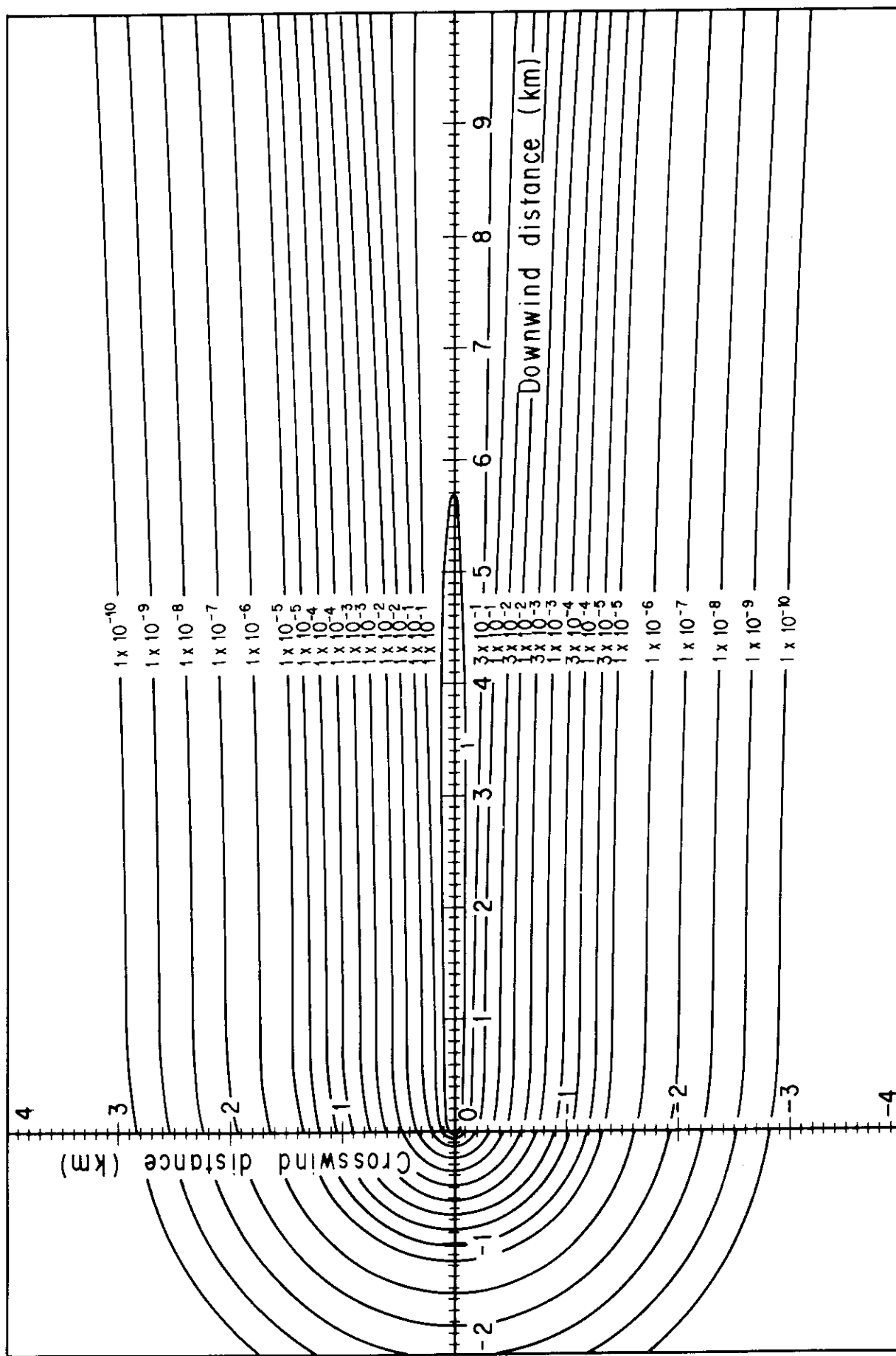


Q : 1 Gbq/h Stack height : 30 m
 E : 1 MeV/dis Stability : F
 U : 1 m/s

scale : 1 / 25000

Fig. 4-4-6 (A) Isopleths of surface air absorbed dose rate

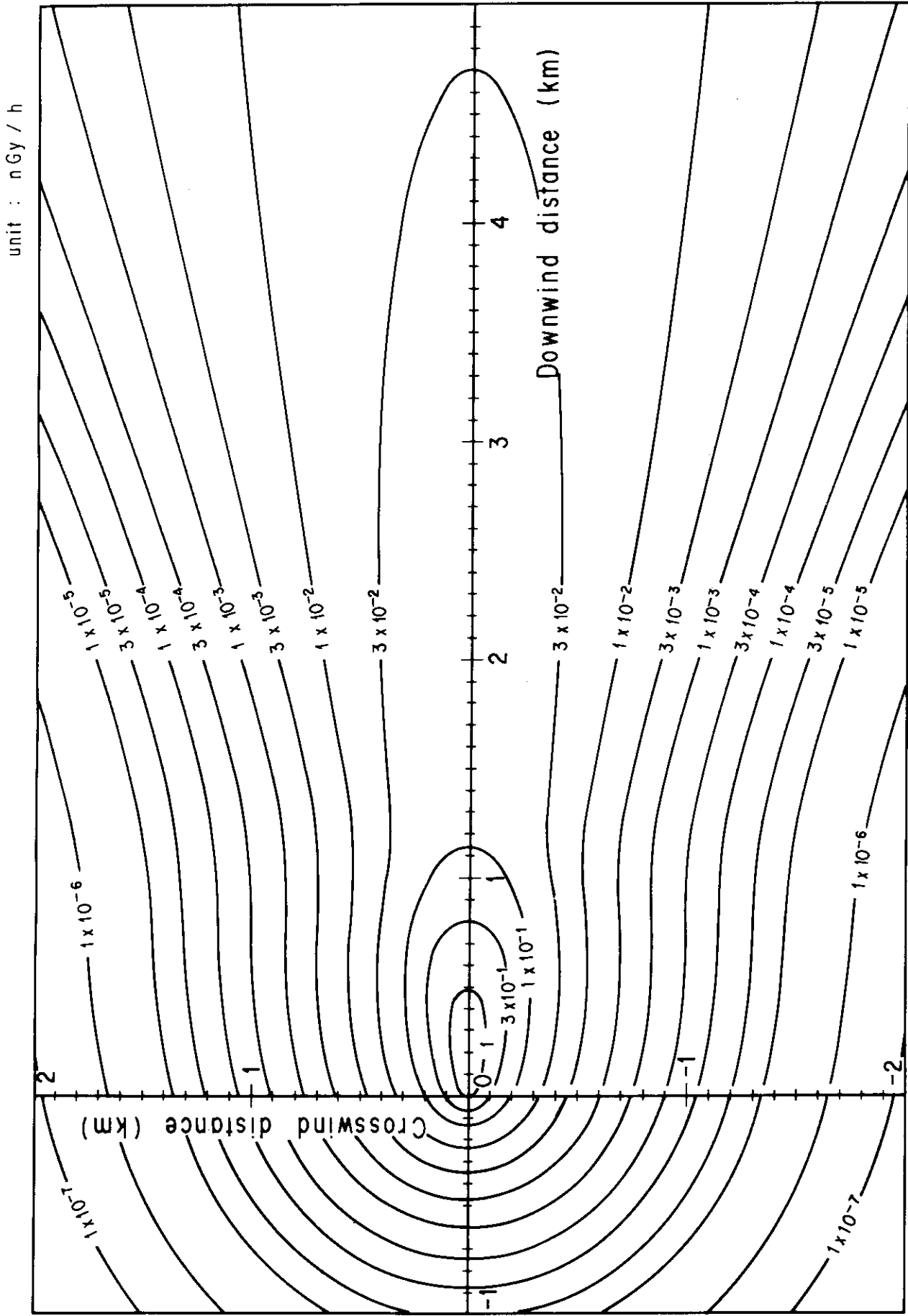
unit : nGy / h



scale : 1 / 50000

Fig.4-4-6 (B) Isopleths of surface air absorbed dose rate

Q : 1 GBq/h Stack height : 30 m
 E : 1 MeV/dis Stability : F
 U : 1 m/s



scale : 1/25000

Fig. 4-5-1 (A) Isopleths of surface air absorbed dose rate

Q : 1 GBq/h Stack height : 40m
 E : 1 MeV/dis Stability : A
 U : 1 m/s

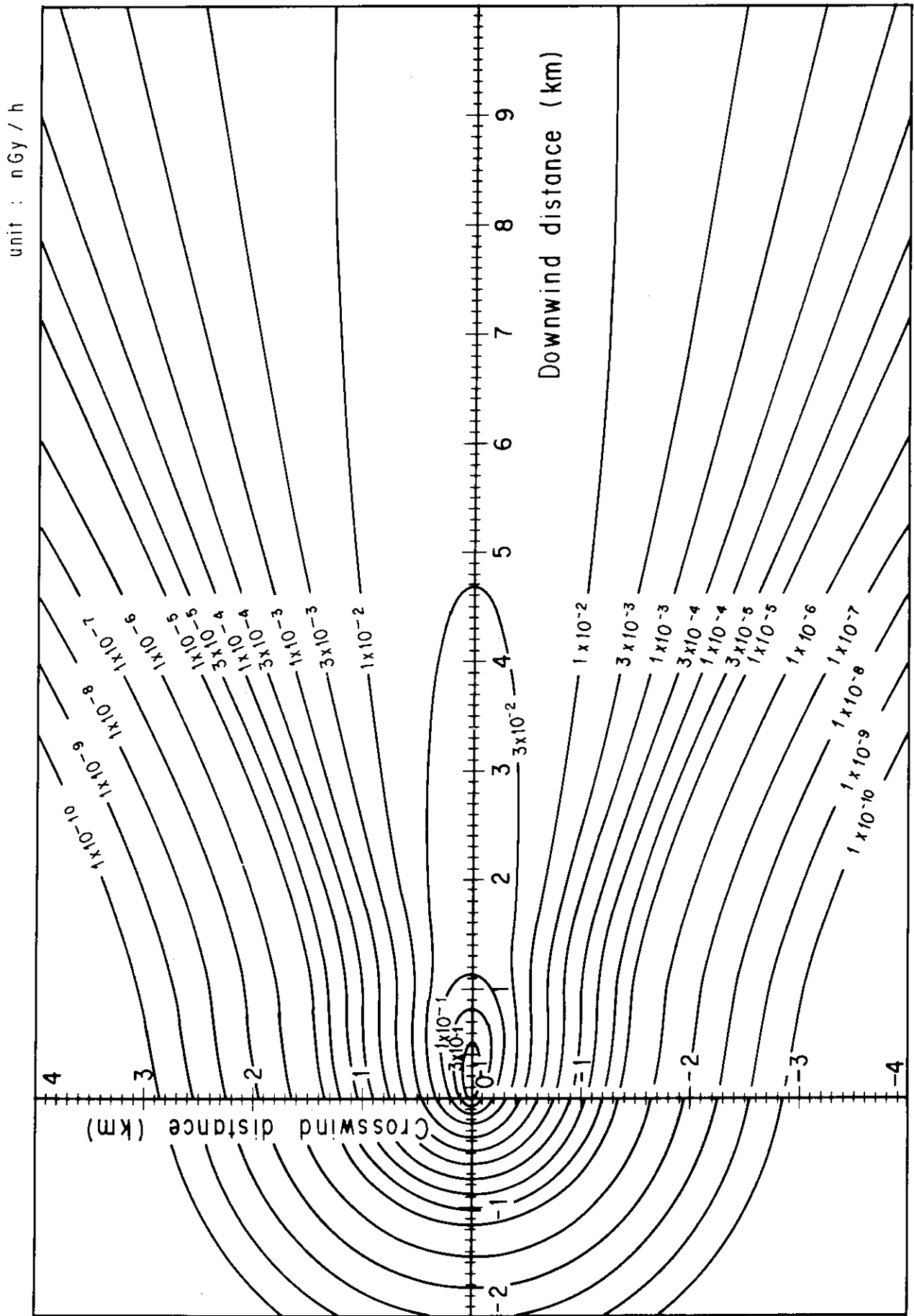
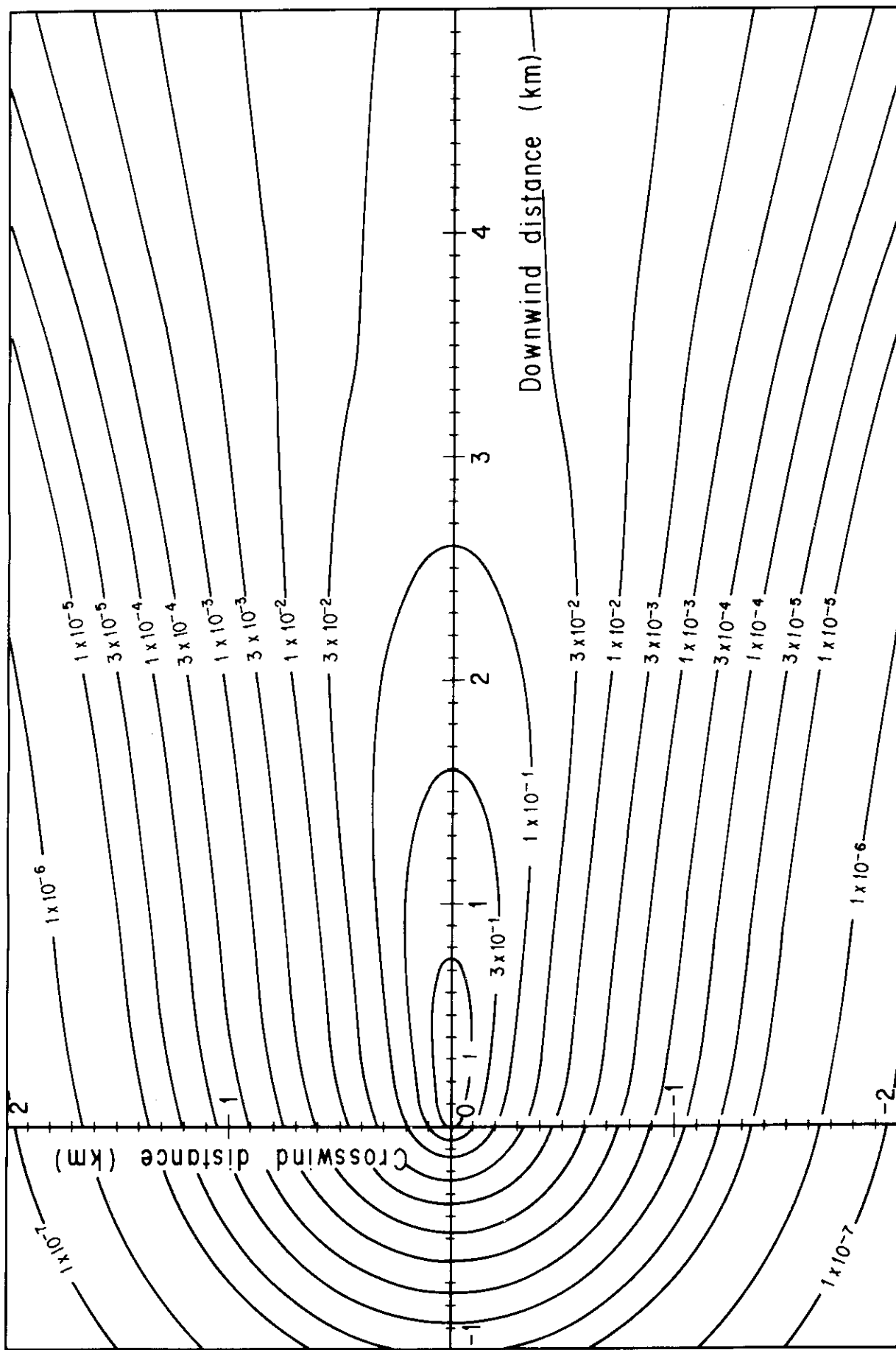


Fig.4-5-1 (B) Isopleths of surface air absorbed dose rate

unit : nGy / h

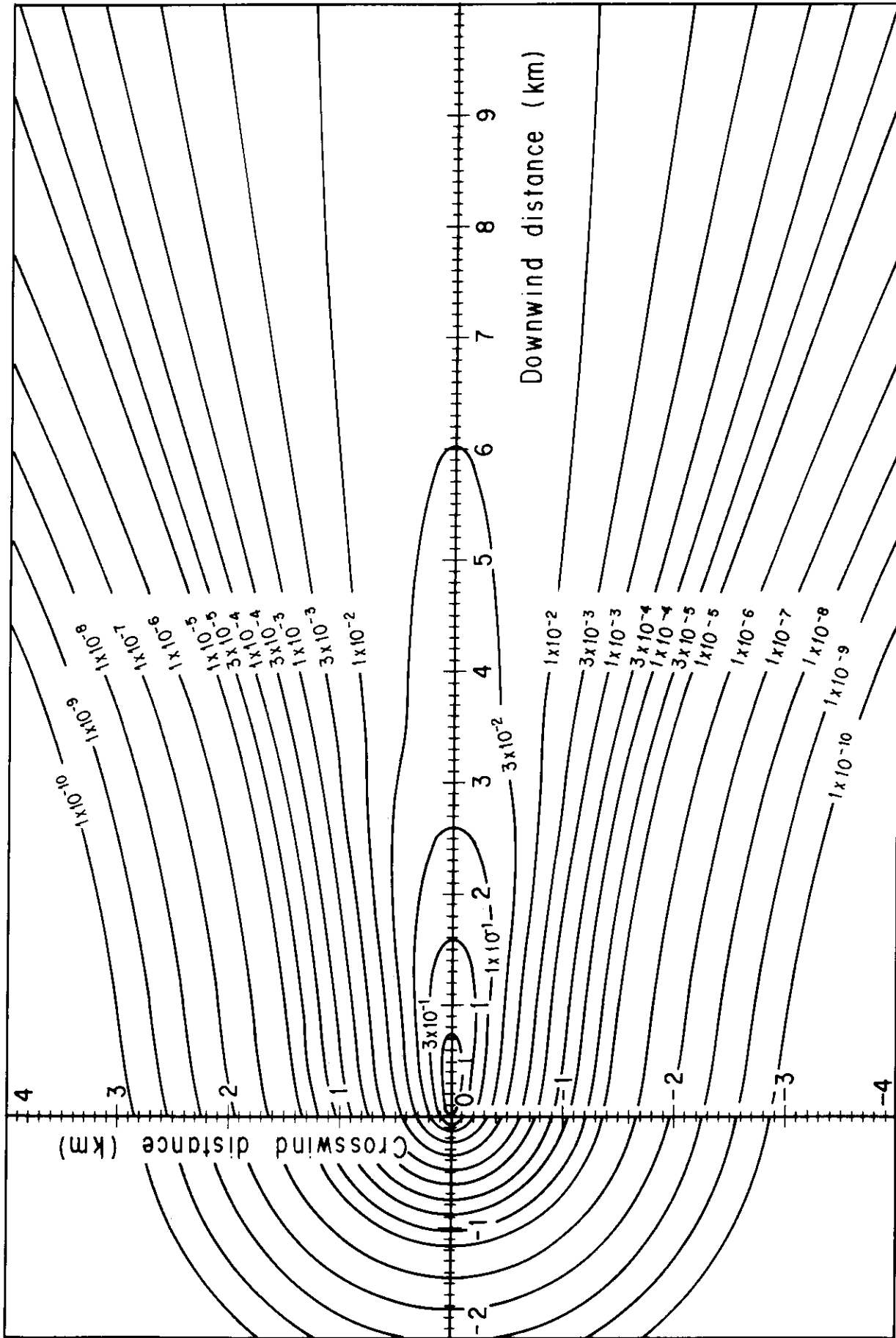


0 : 1 GBq/h Stack height : 40m
 E : 1 MeV/dis Stability : B
 U : 1 m/s

scale : 1/25000

Fig.4-5-2 (A) Isopleths of surface air absorbed dose rate

unit : nGy / h



Q : 1 GBq/h Stack height : 40 m
 E : 1 MeV/ds Stability : B
 U : 1 m/s

Fig.4-5-2 (B) Isopleths of surface air absorbed dose rate

unit : nGy / h

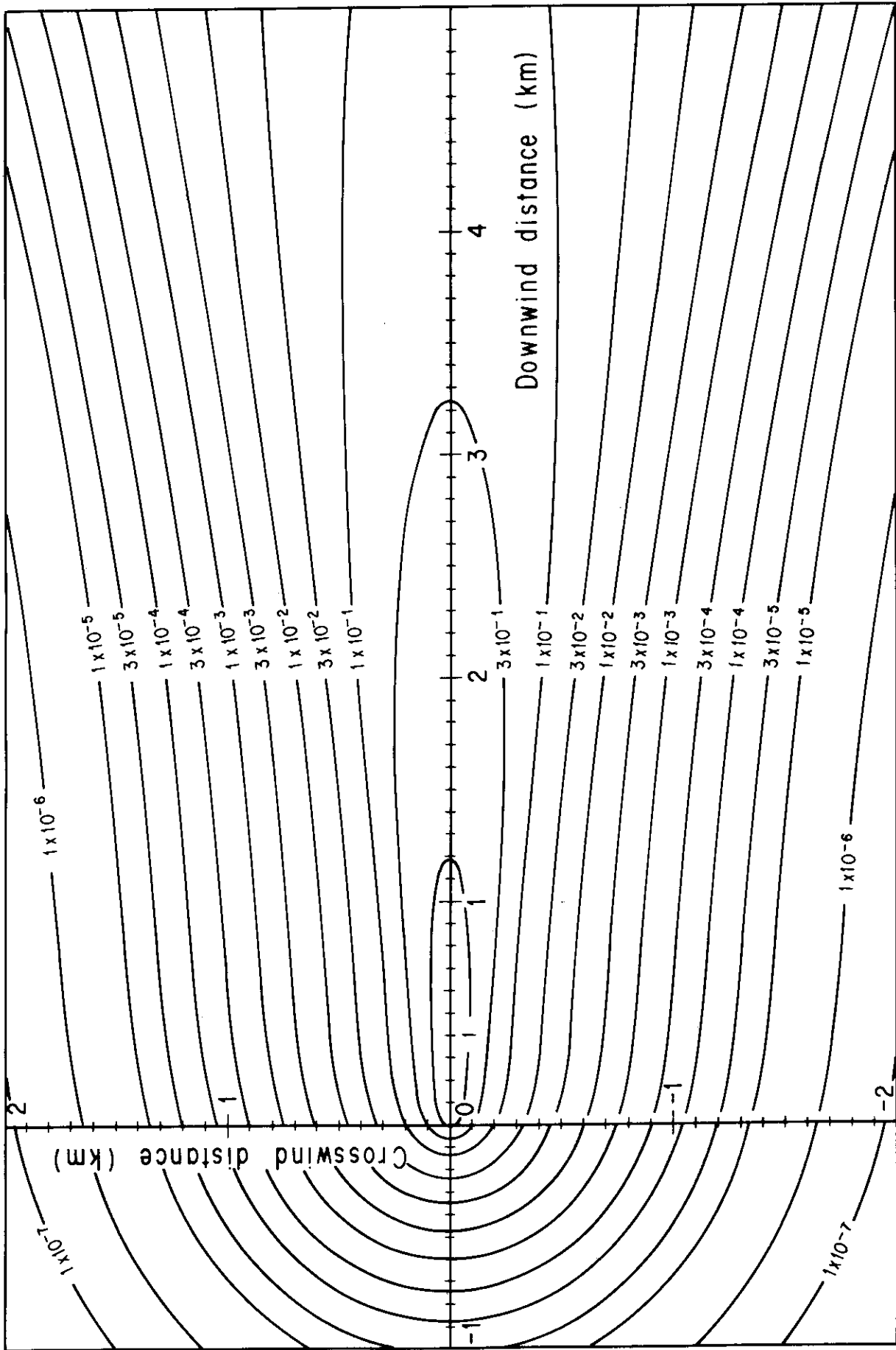
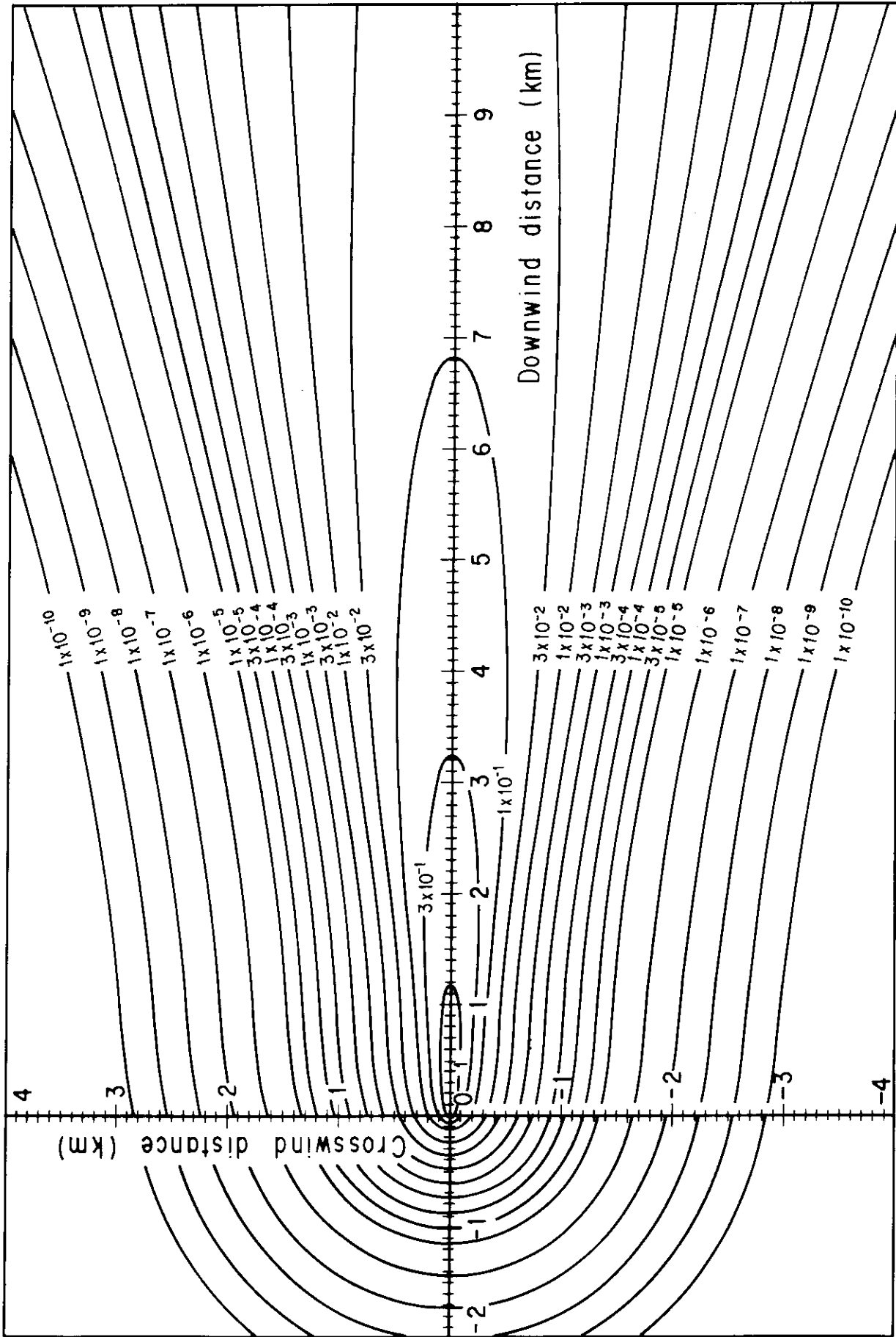


Fig.4-5-3 (A) Isopleths of surface air absorbed dose rate

Q : 1 GBq/h Stack height : 40 m
 E : 1 MeV/ds Stability : C
 U : 1 m/s

unit : nGy / h

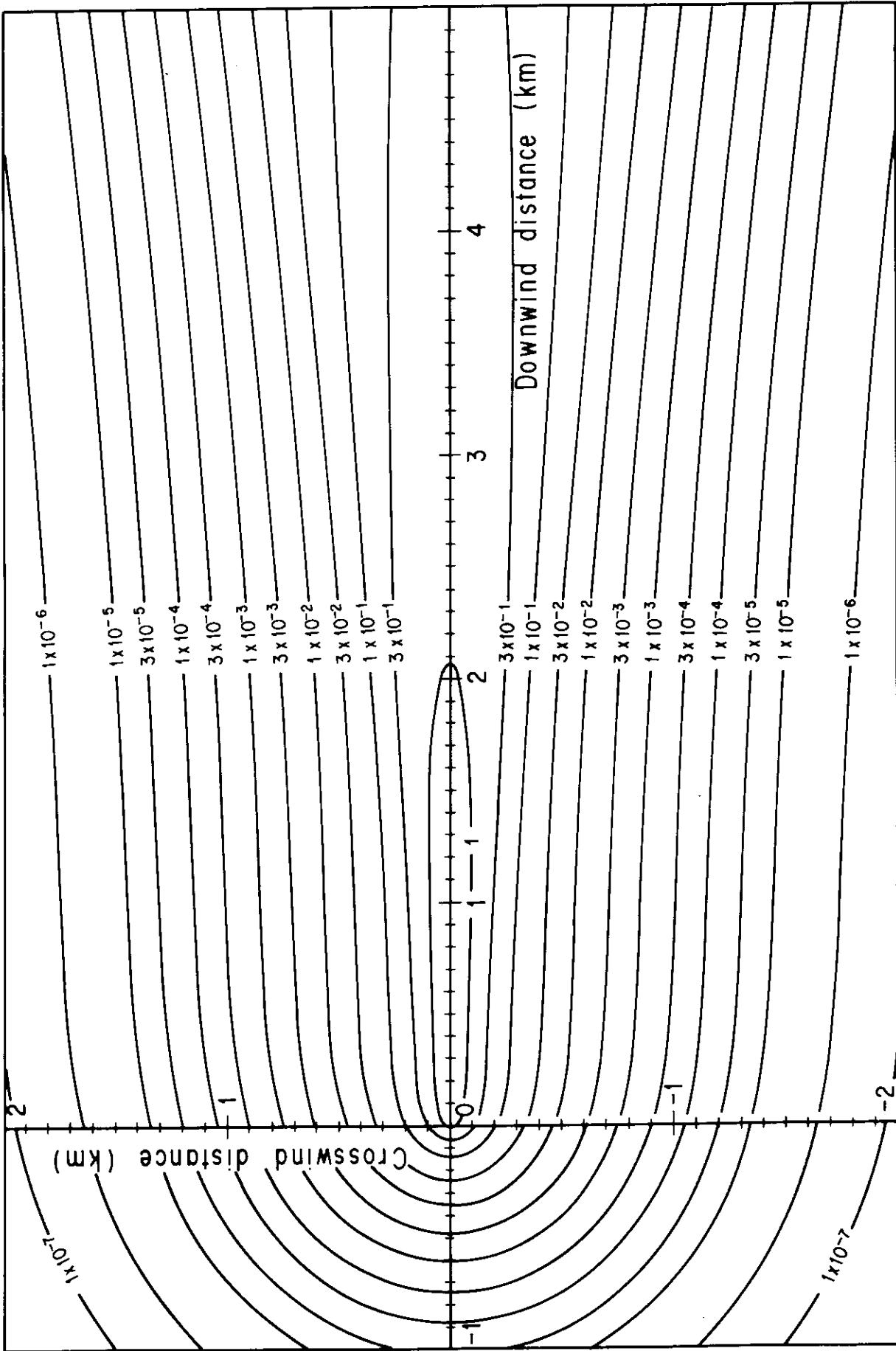


scale : 1/50000

Fig.4-5-3 (B) Isopleths of surface air absorbed dose rate

Q : 1 Gbq/h Stack height : 40 m
 E : 1 MeV/dis Stability : C
 U : 1 m/s

unit : nGy / h

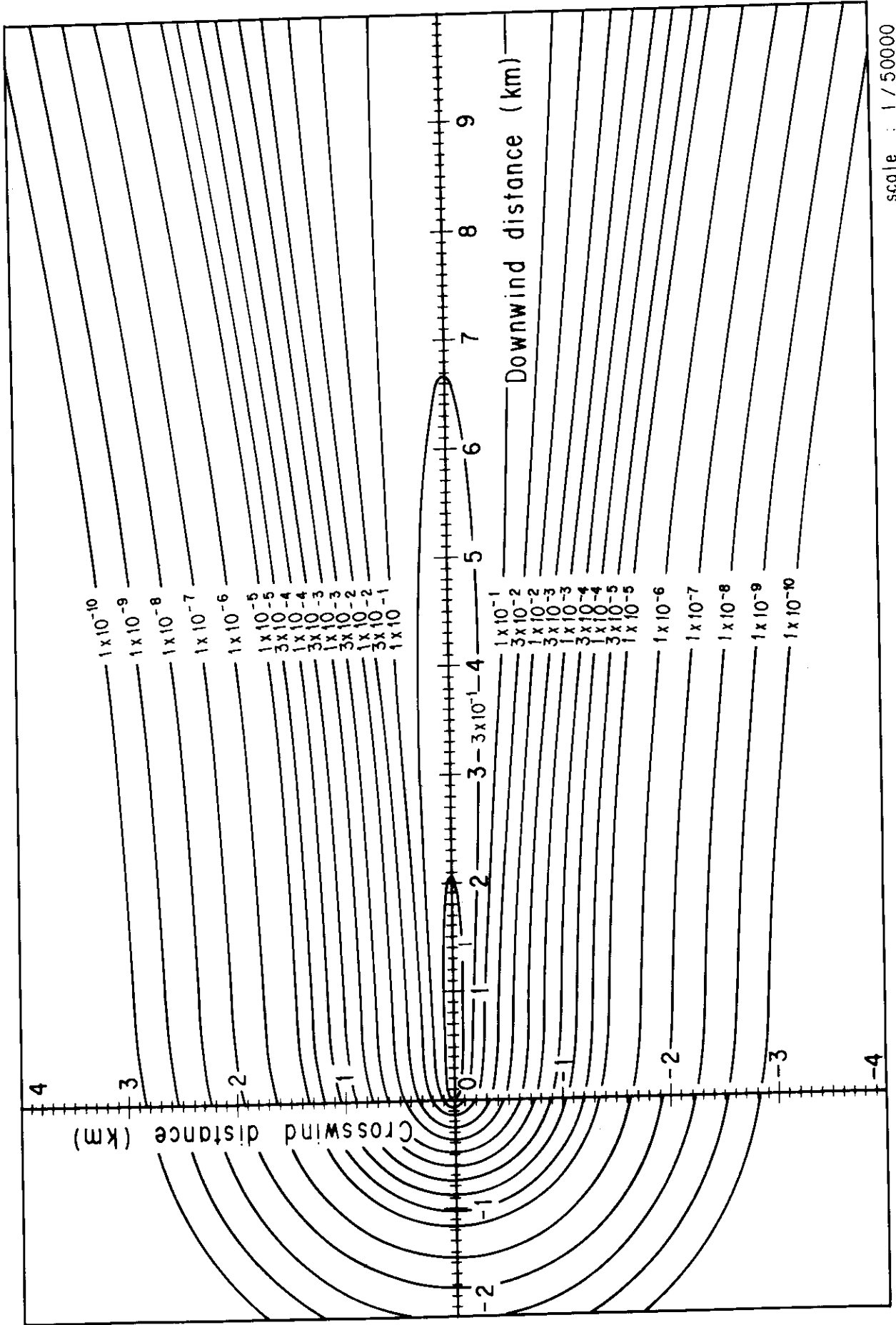


scale : 1/25000

Fig. 4-5-4 (A) Isopleths of surface air absorbed dose rate

Q : 1 GBq/h Stack height : 40m
 E : 1 MeV/dis Stability : D
 U : 1 m/s

unit : nGy / h

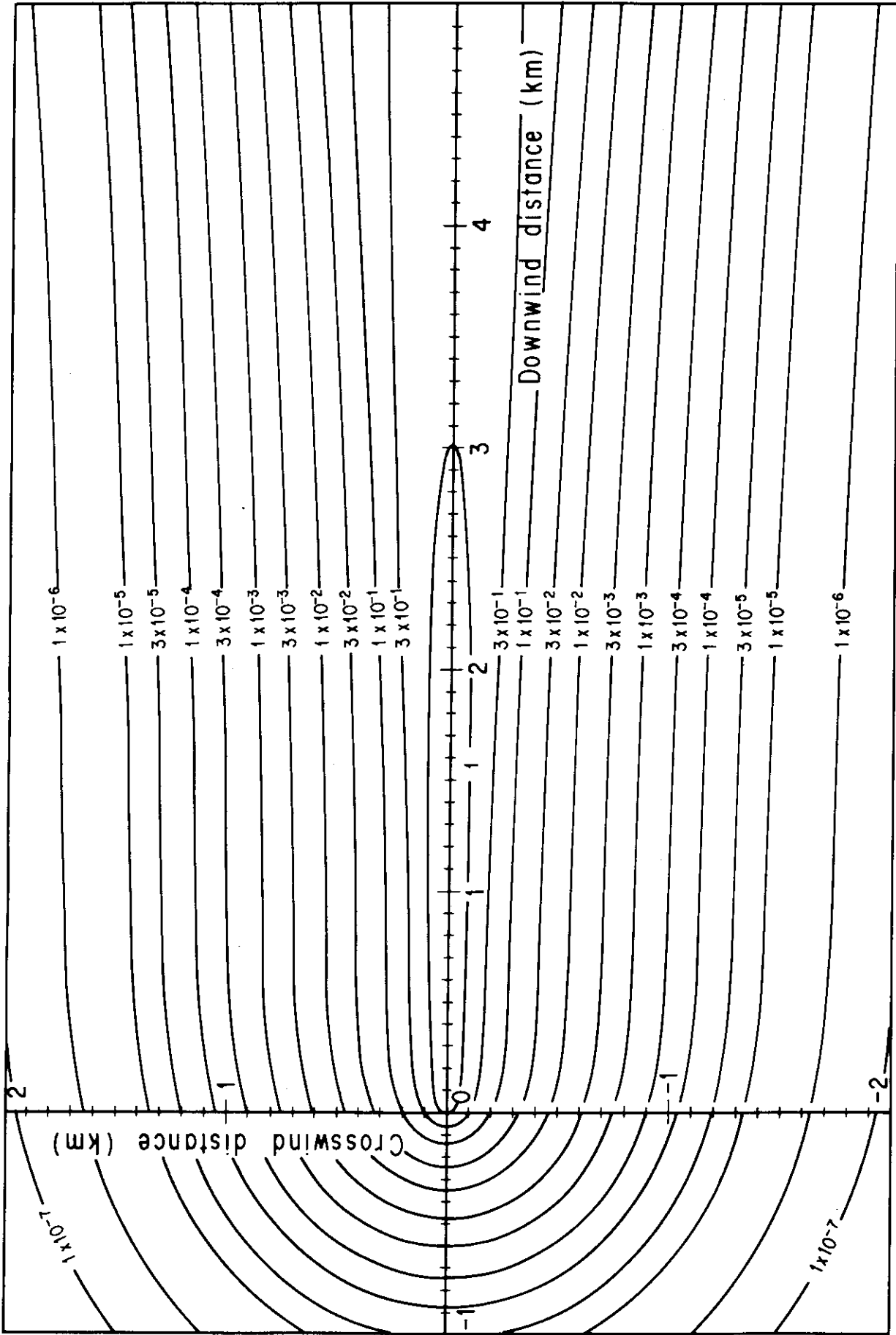


scale : 1 / 50000

Fig.4-5-4 (B) Isopleths of surface air absorbed dose rate

Q : 1 GBq/h Stack height : 40 m
 E : 1 MeV/dis Stability : D
 U : 1 m/s

unit : nGy / h

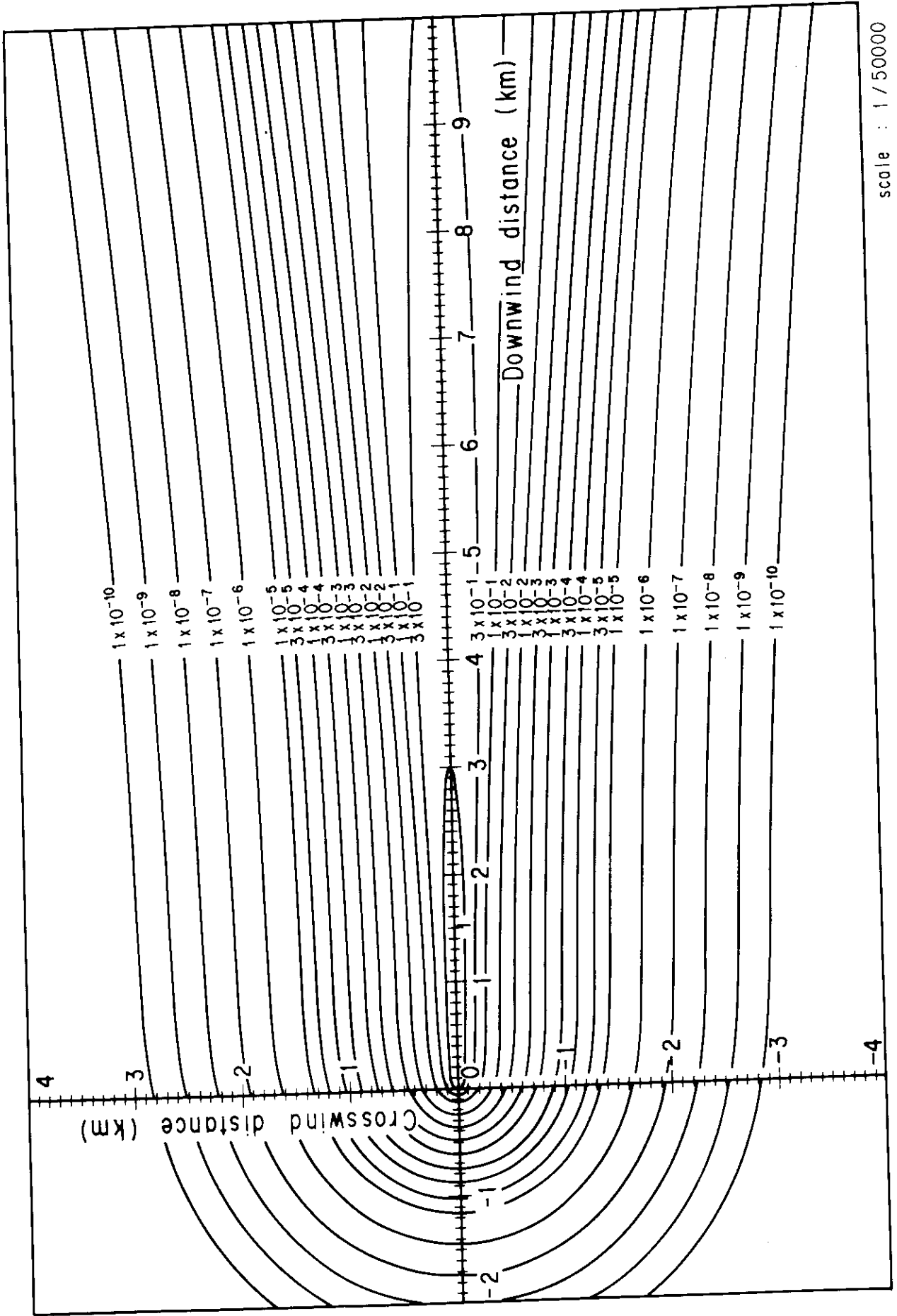


Q : 1 GBq/h Stack height : 40m
 E : 1 MeV/dis Stability : E
 U : 1 m/s

scale : 1/25000

Fig.4-5-5 (A) Isopleths of surface air absorbed dose rate

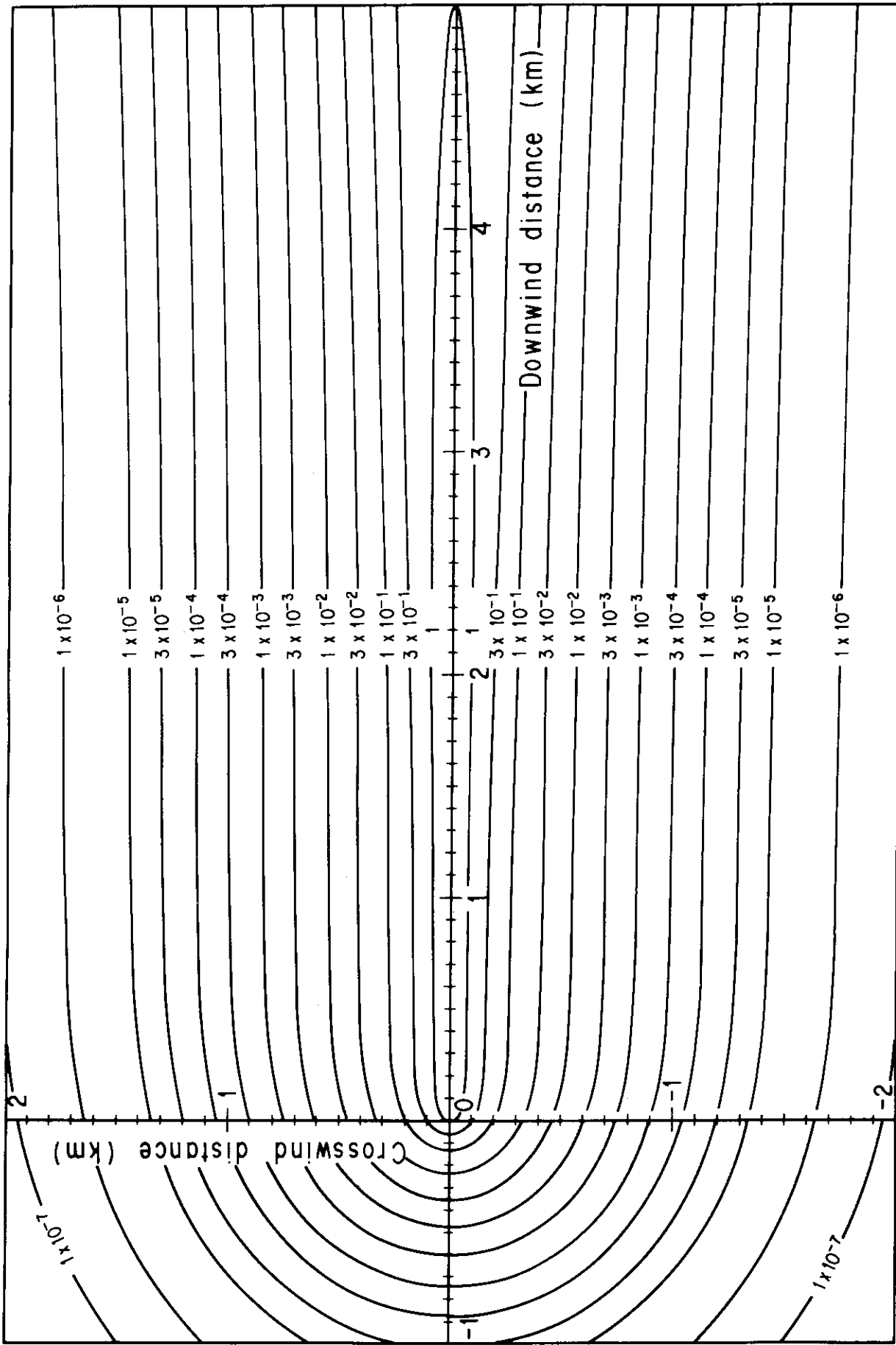
unit : nGy / h



Q : 1 GBq/h Stack height : 40 m
 E : 1 MeV/dis Stability : E
 U : 1 m/s

Fig.4-5-5 (B) Isopleths of surface air absorbed dose rate

unit : nGy / h

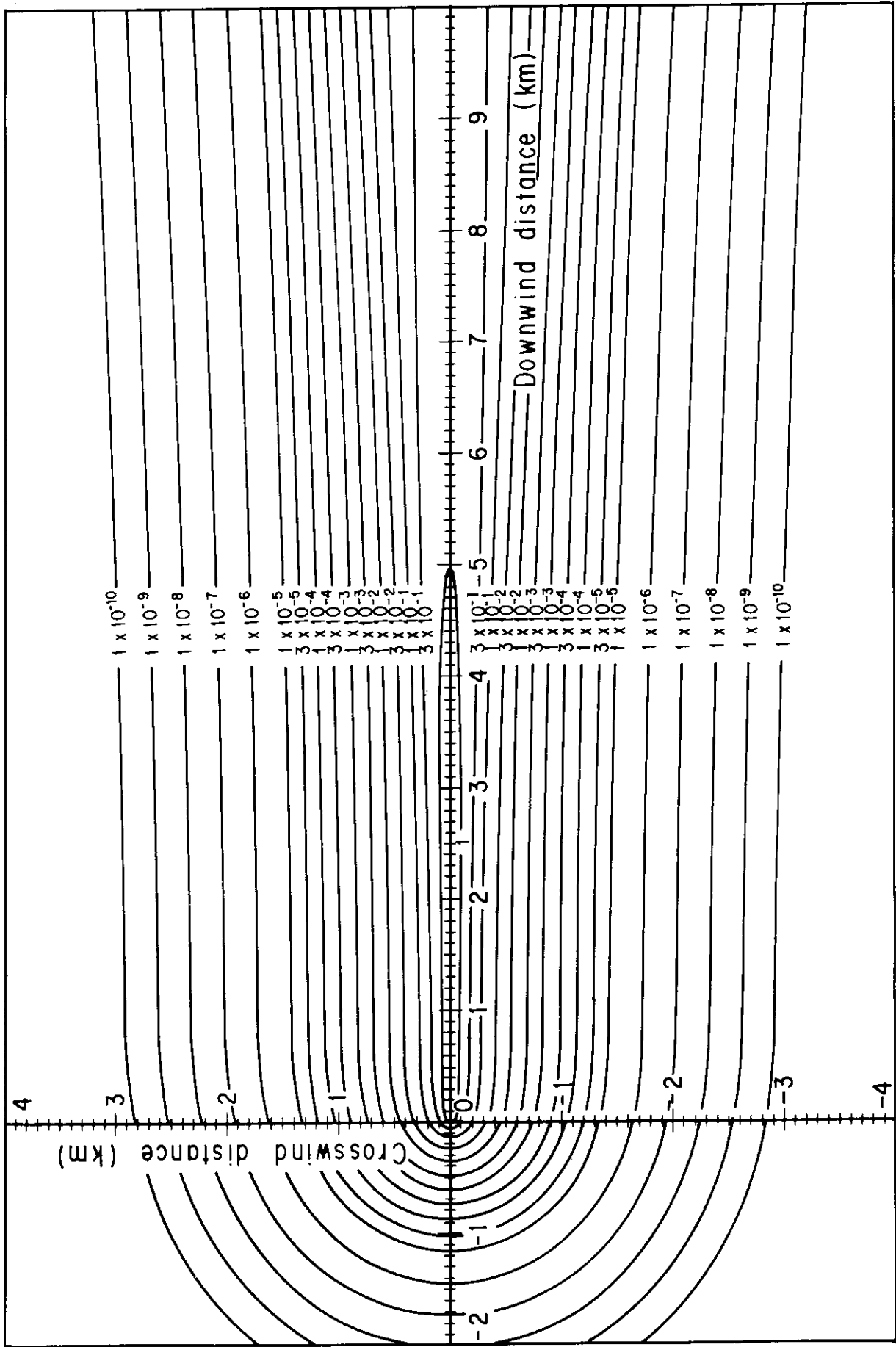


Q : 1 GBq/h Stack height : 40m
 E : 1 MeV/dis Stability : F
 U : 1 m/s

scale : 1/25000

Fig. 4-5-6 (A) Isopleths of surface air absorbed dose rate

unit : nGy / h



scale : 1 / 50000

Fig.4-5-6 (B) Isopleths of surface air absorbed dose rate

Q : 1 GBq/h Stack height : 40 m
 E : 1 MeV/dis Stability : F
 U : 1 m/s

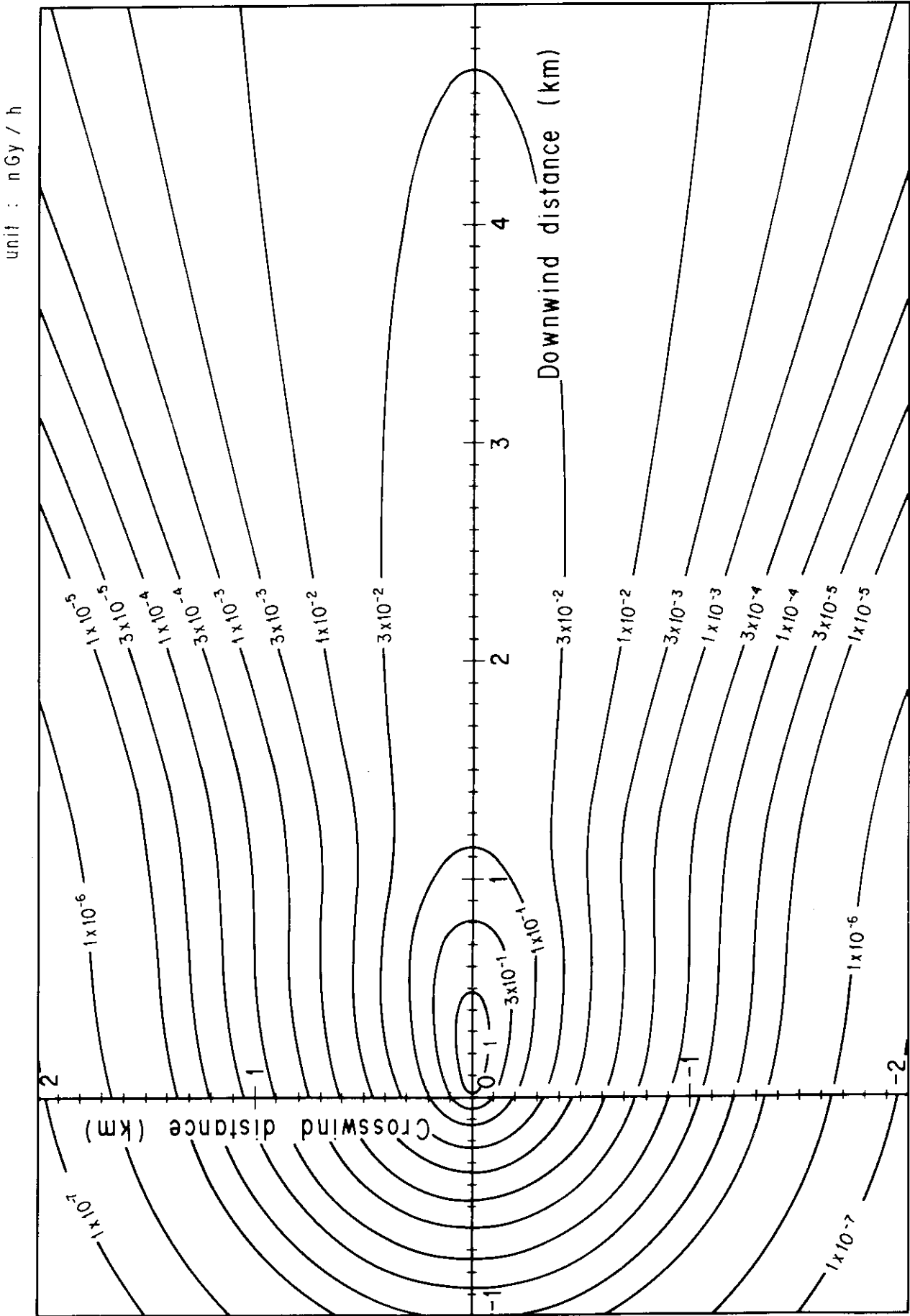
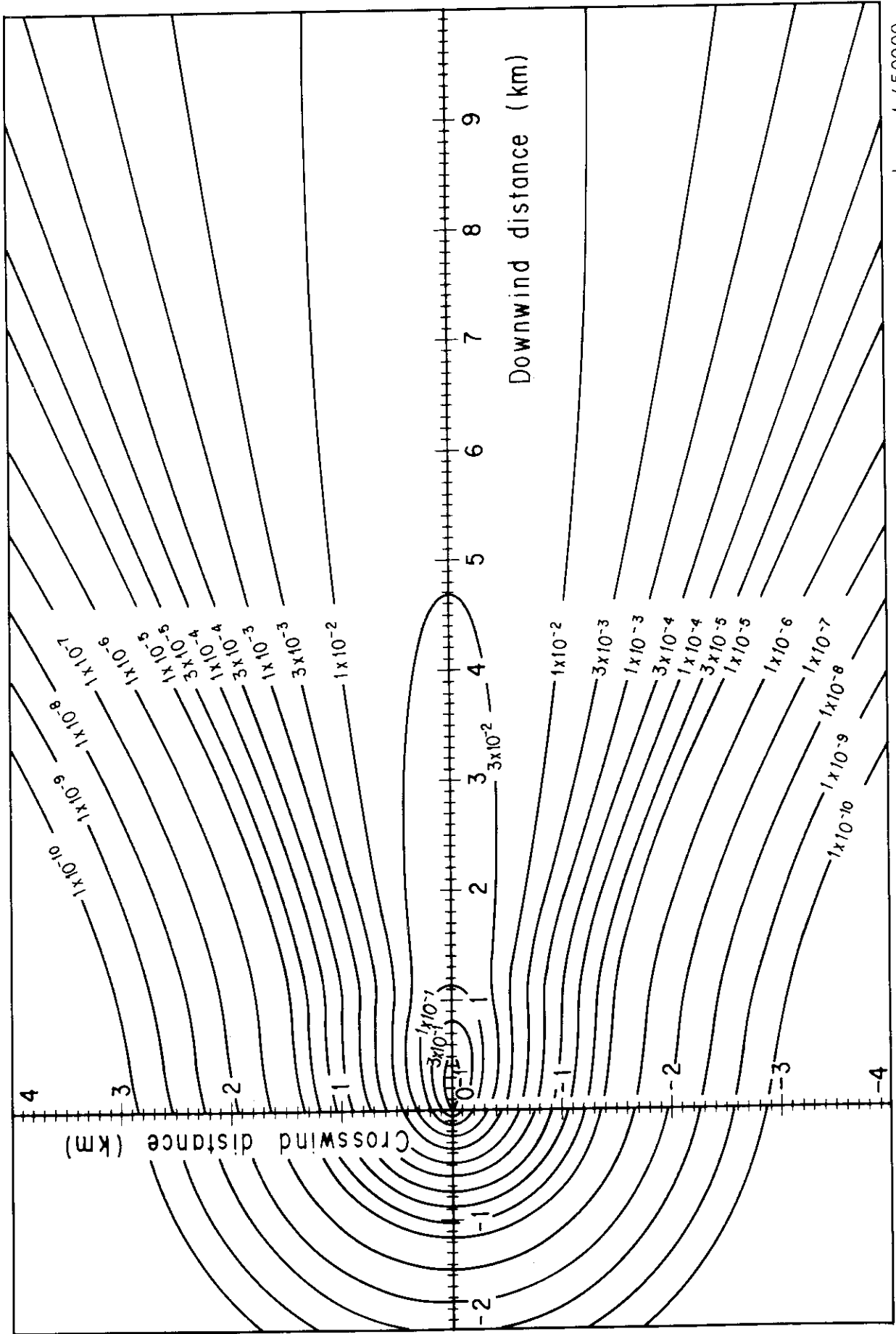


Fig. 4-6-1 (A) Isopleths of surface air absorbed dose rate

unit : nGy / h



scale : 1 / 50000

Fig.4-6-1 (B) Isopleths of surface air absorbed dose rate

Q : 1 GBq/h Stack height : 50 m
 σ : 1 MeV/dis Stability : A
 U : 1 m/s

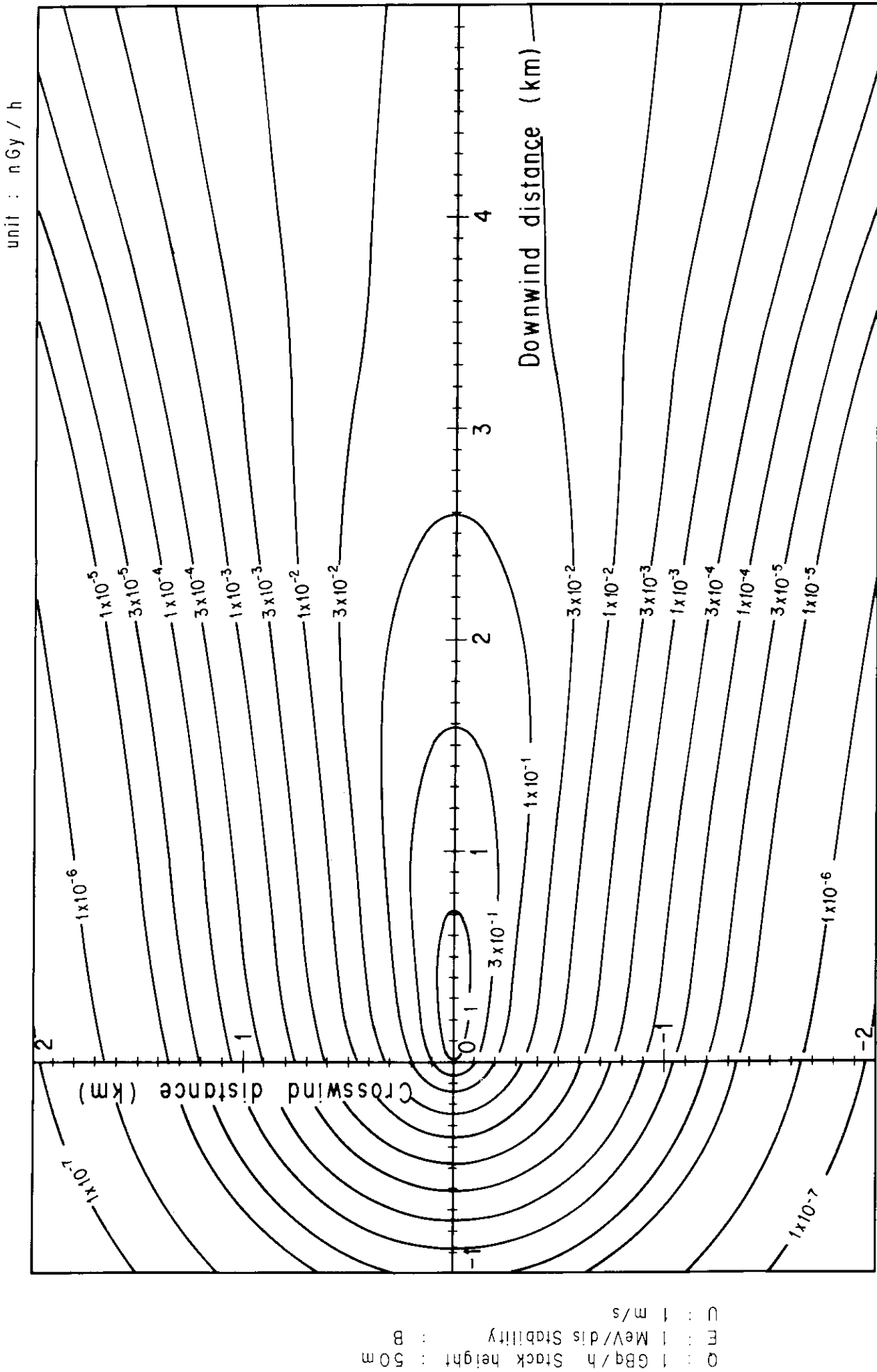


Fig.4-6-2 (A) Isopleths of surface air absorbed dose rate

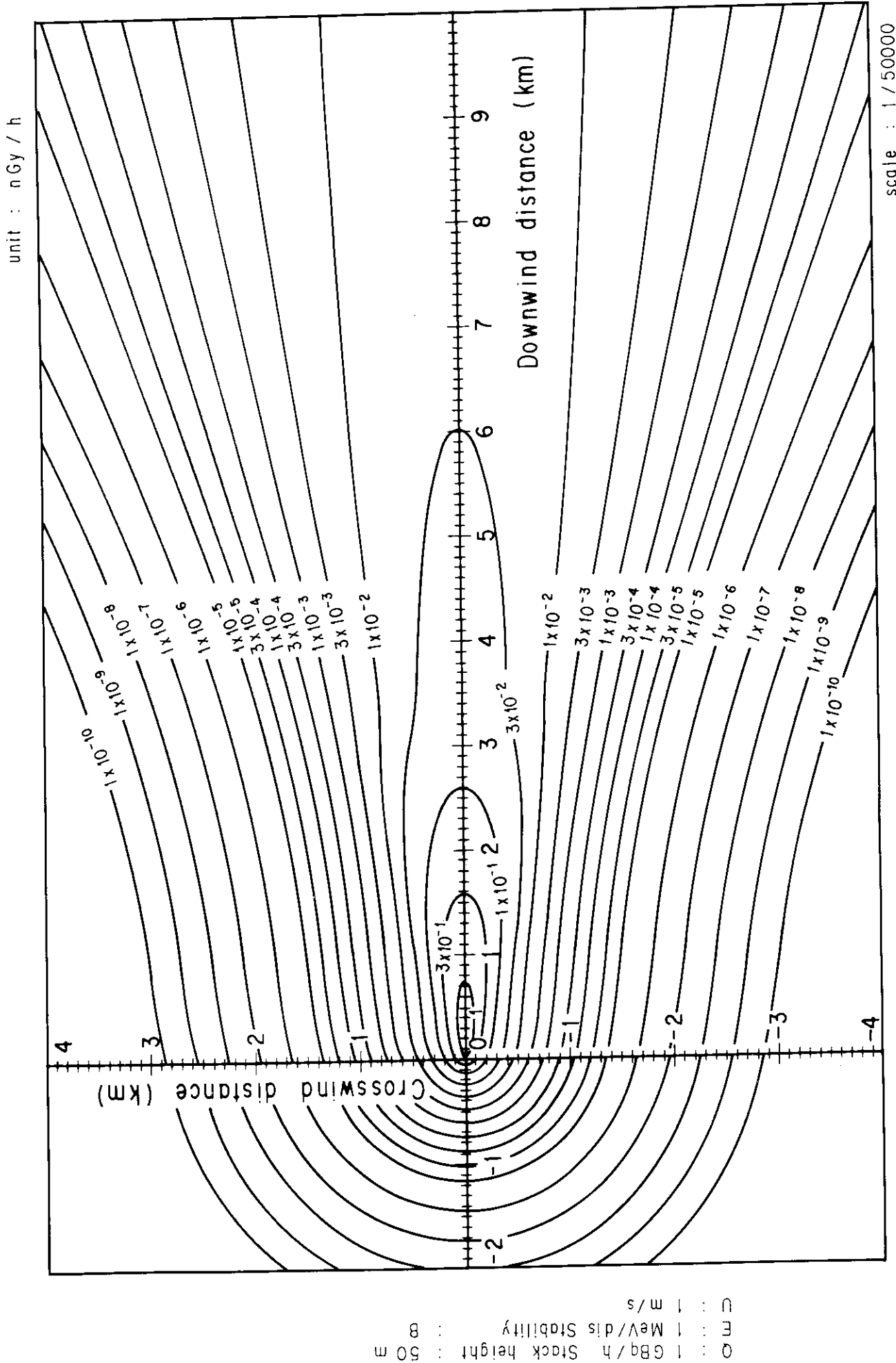


Fig. 4-6-2 (B) Isopleths of surface air absorbed dose rate

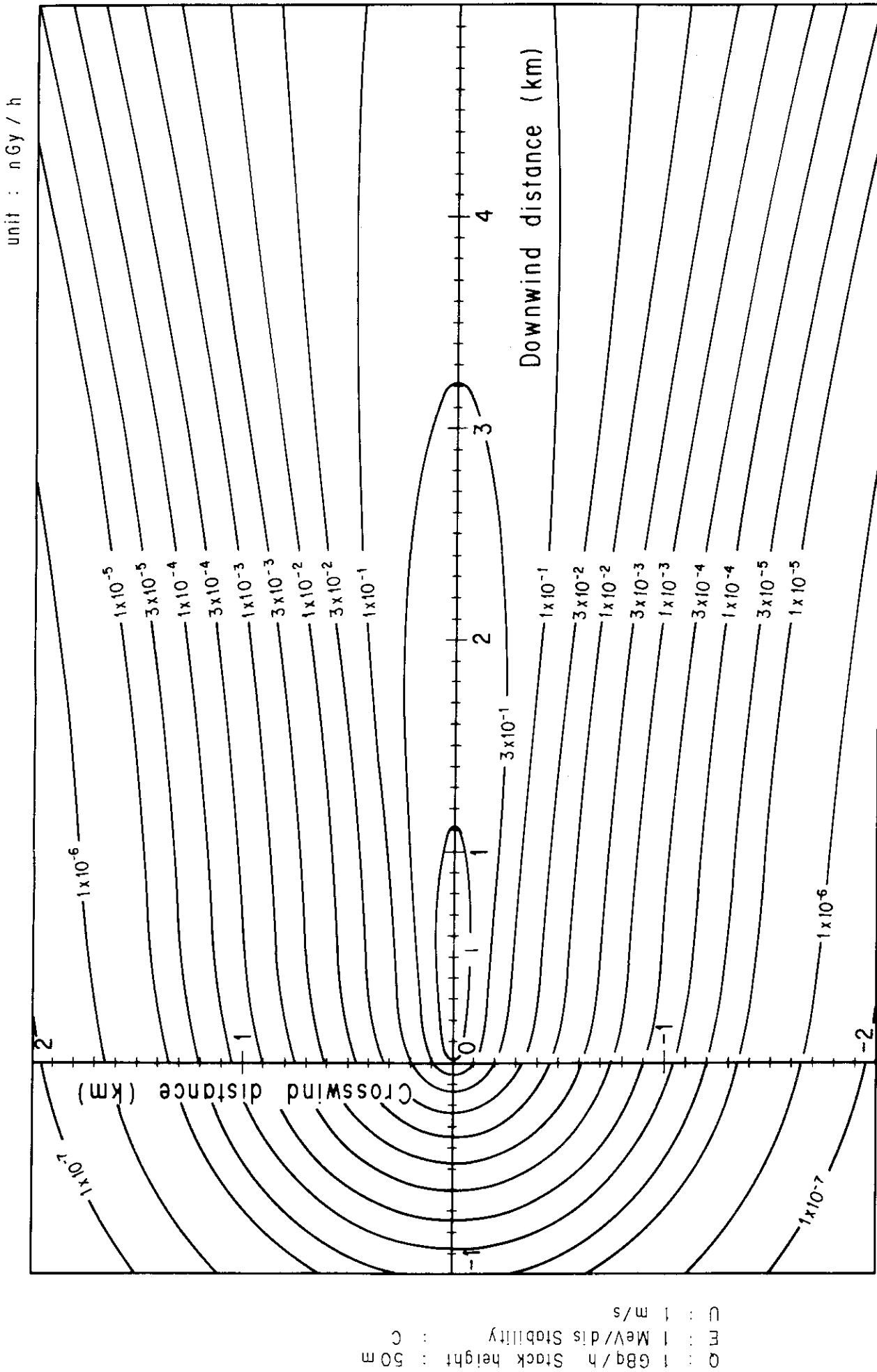


Fig. 4-6-3 (A) Isopleths of surface air absorbed dose rate

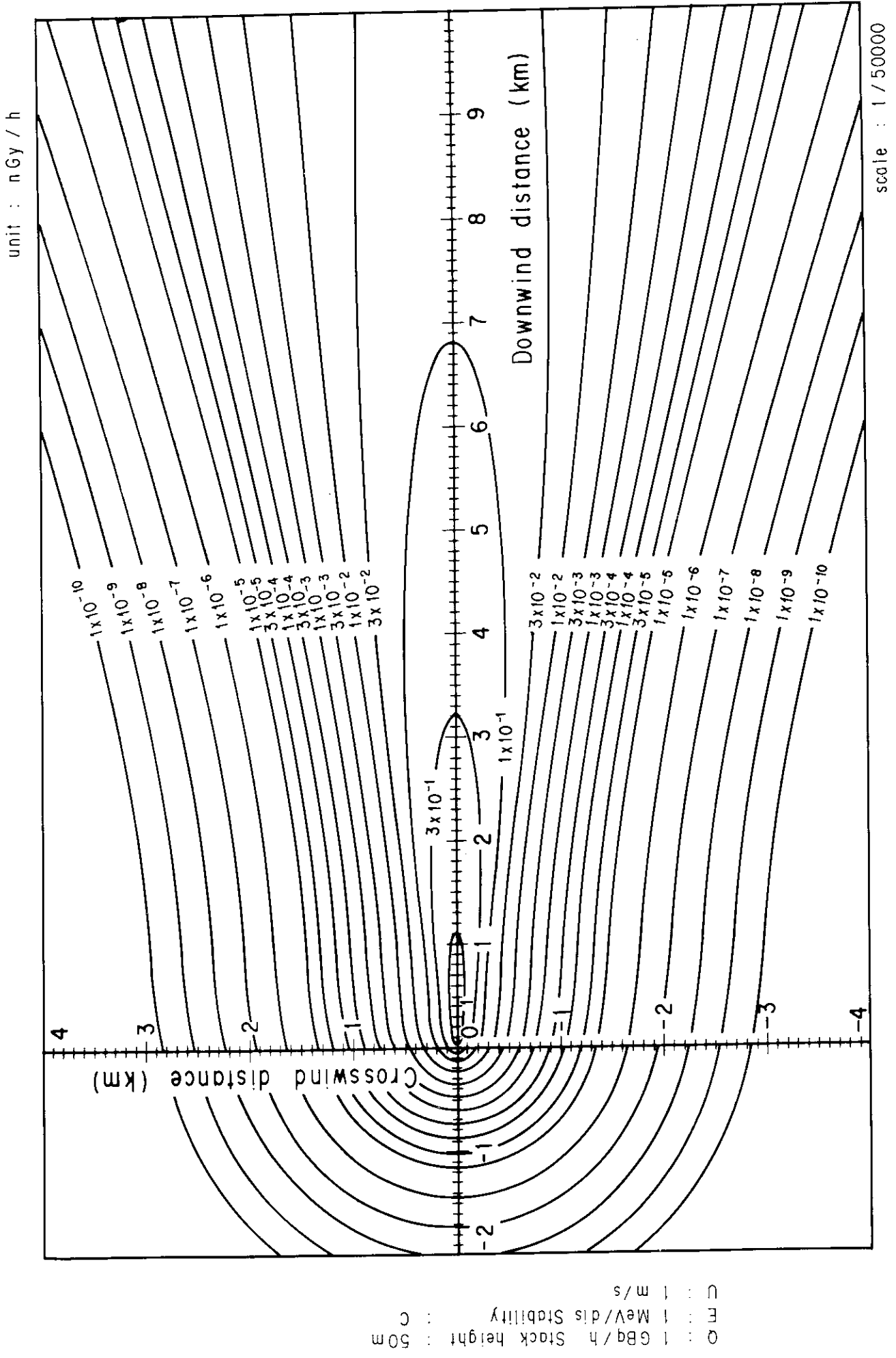


Fig. 4-6-3 (B) Isopleths of surface air absorbed dose rate

Q : 1 GBq/h Stack height : 50m
 E : 1 MeV/dis Stability : C
 U : 1 m/s

unit : nGy / h

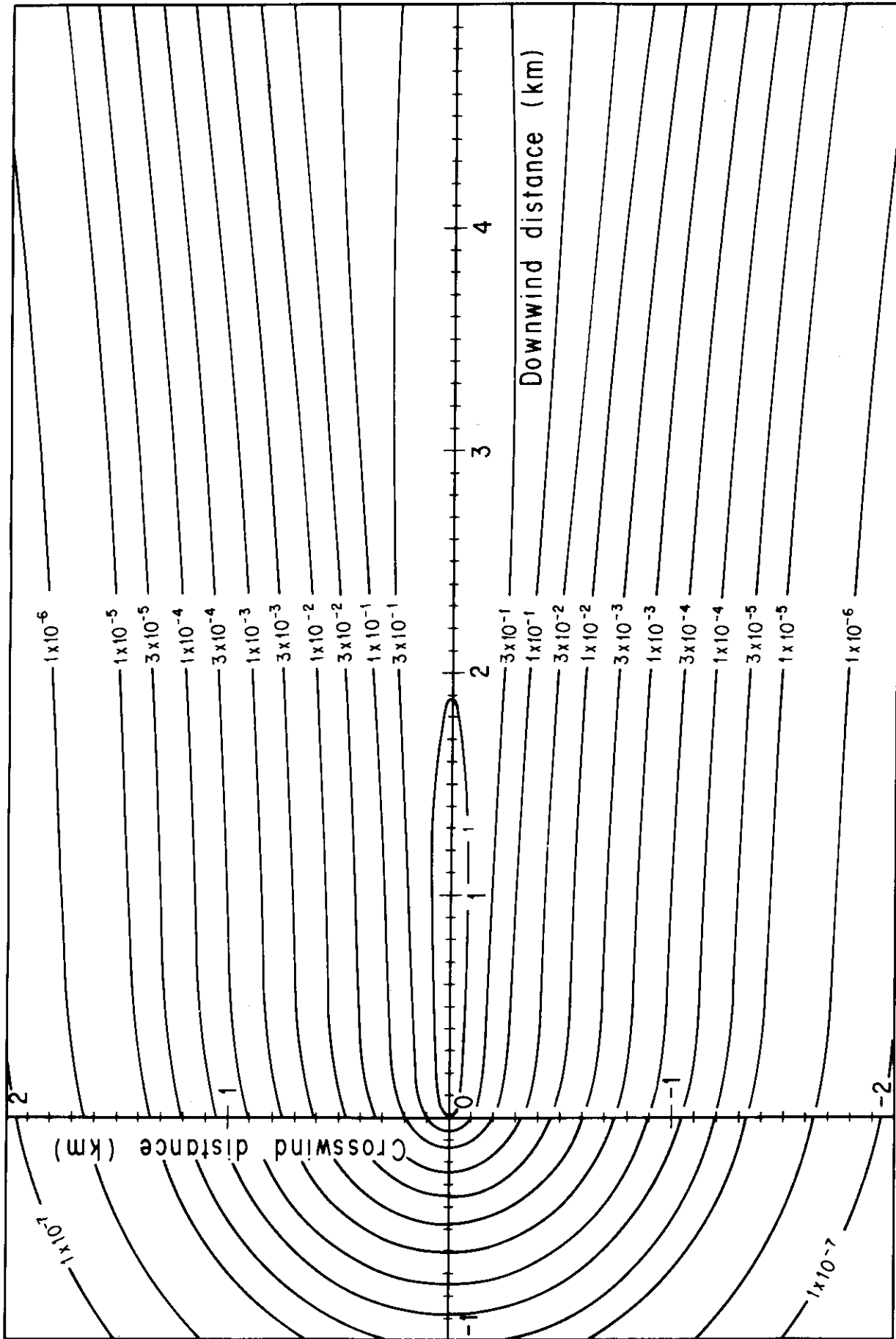
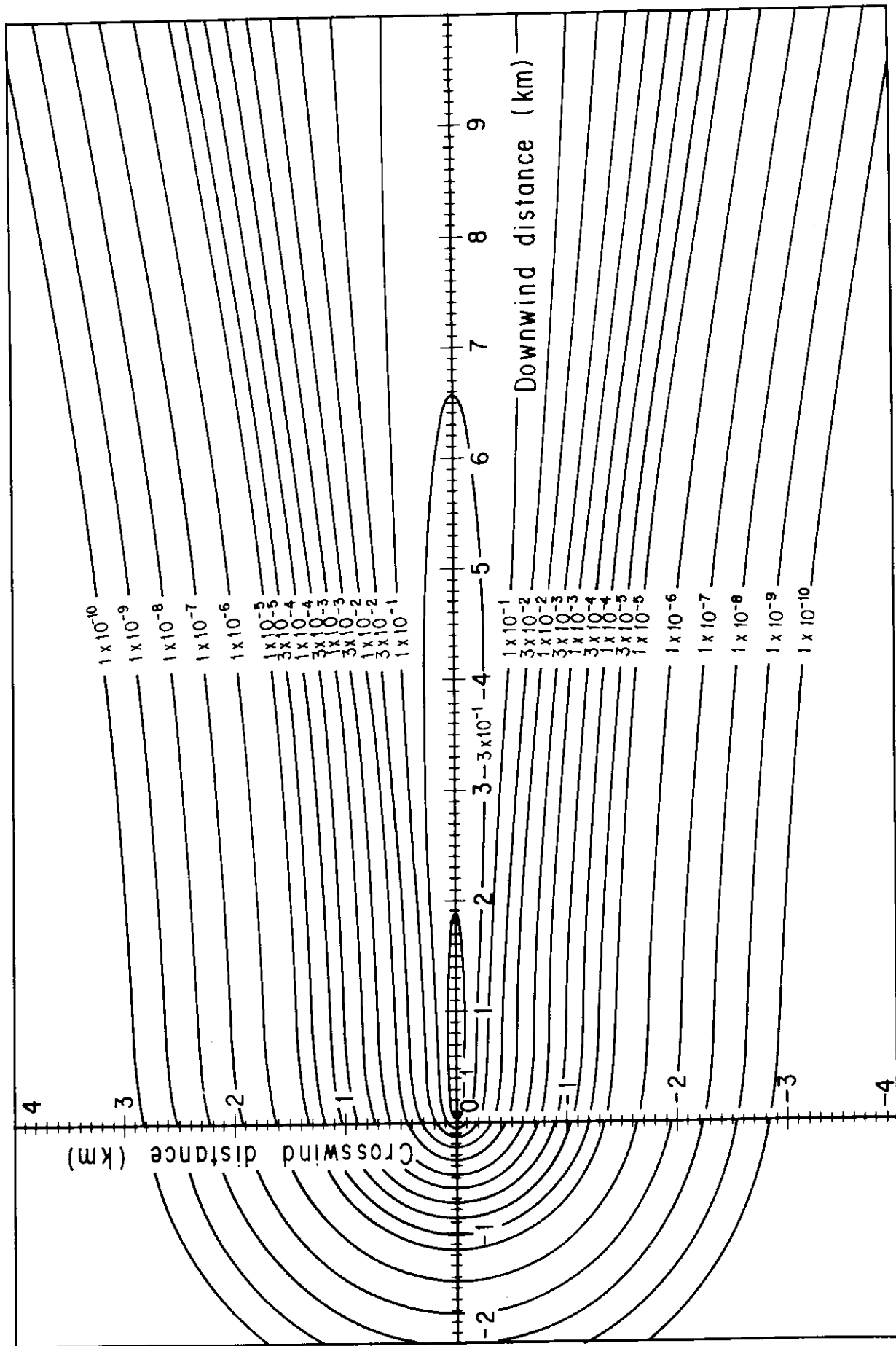


Fig. 4-6-4 (A) Isopleths of surface air absorbed dose rate

Q : 1 GBq/h Stack height : 50 m
E : 1 MeV/dis Stability : D
U : 1 m/s

unit : nGy / h

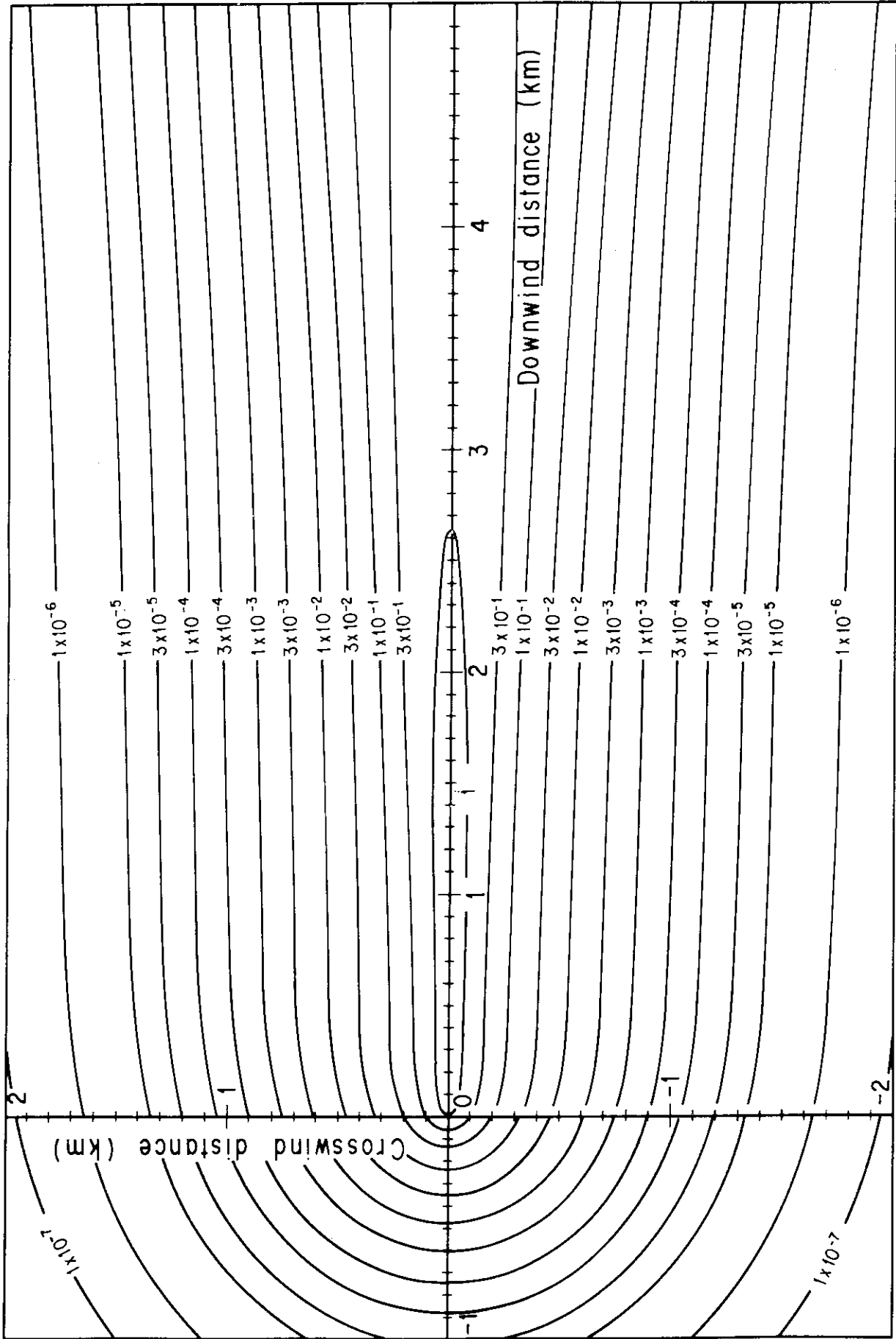


scale : 1 / 50000

Fig.4-6-4 (B) Isopleths of surface air absorbed dose rate

Q : 1 GBq/h Stack height : 50 m
 E : 1 MeV/dis Stability : D
 U : 1 m/s

unit : nGy / h

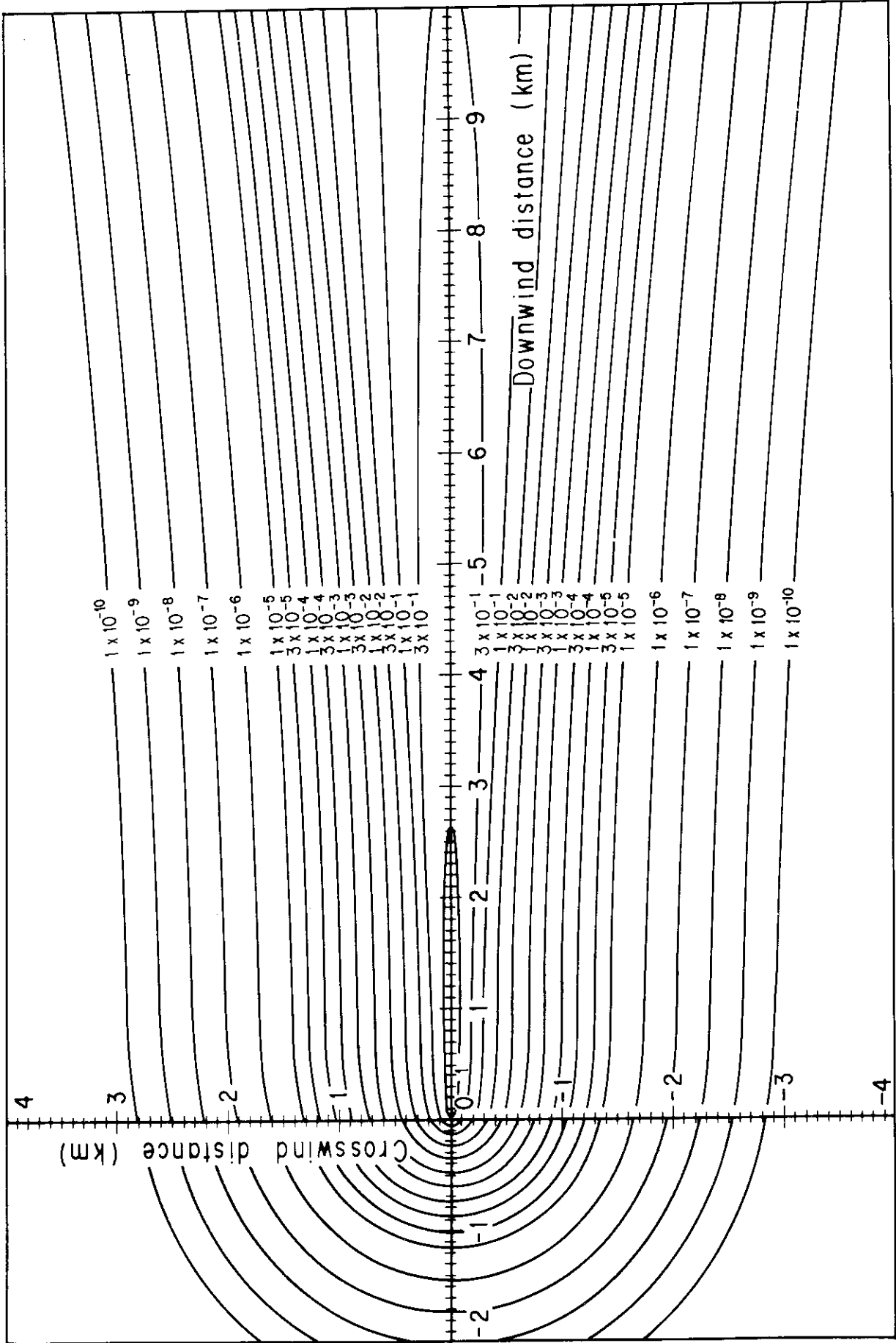


Q : 1 Gbq/h Stack height : 50 m
 E : 1 MeV/dis Stability : E
 U : 1 m/s

scale : 1 / 25000

Fig. 4-6-5 (A) Isopleths of surface air absorbed dose rate

unit : nGy / h

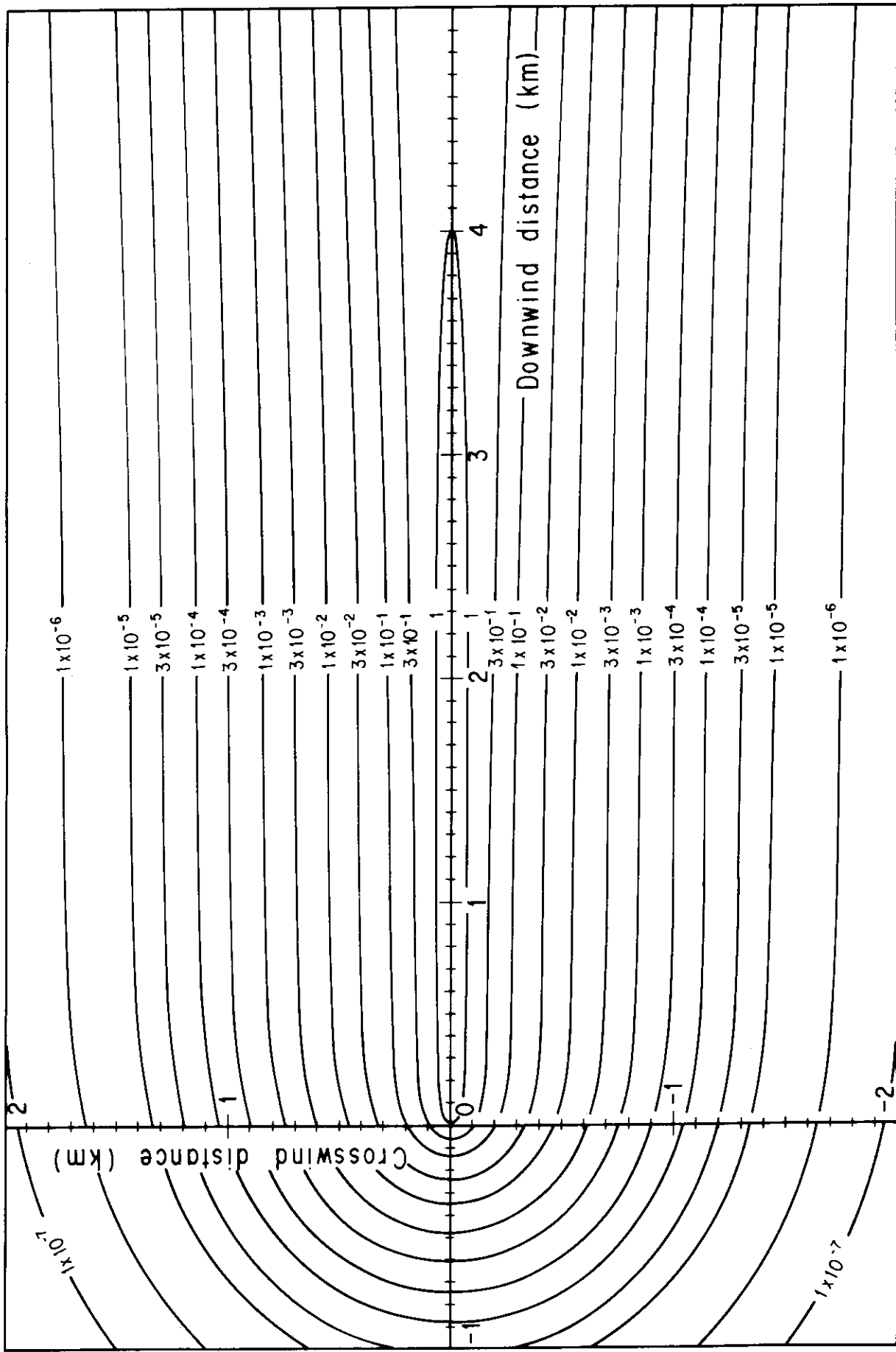


scale : 1 / 50000

Fig.4-6-5 (B) Isopleths of surface air absorbed dose rate

Q : 1 GBq/h Stack height : 50 m
 E : 1 MeV/ds Stability : F
 U : 1 m/s

unit : nGy / h

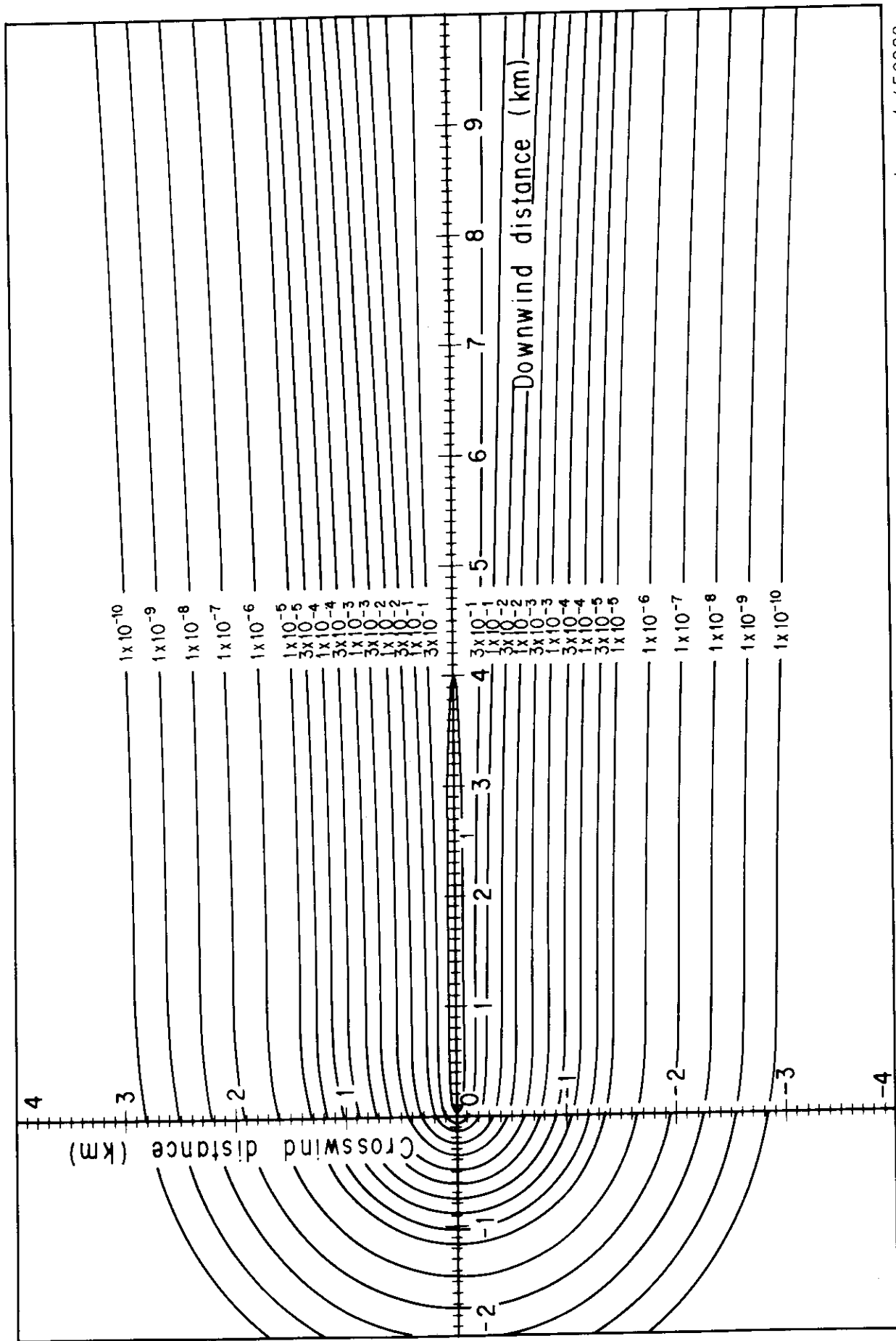


Q : 1 GBq/h Stack height : 50m
 E : 1 MeV/dis Stability : F
 U : 1 m/s

scale : 1 / 25000

Fig. 4-6-6 (A) Isopleths of surface air absorbed dose rate

unit : nGy / h

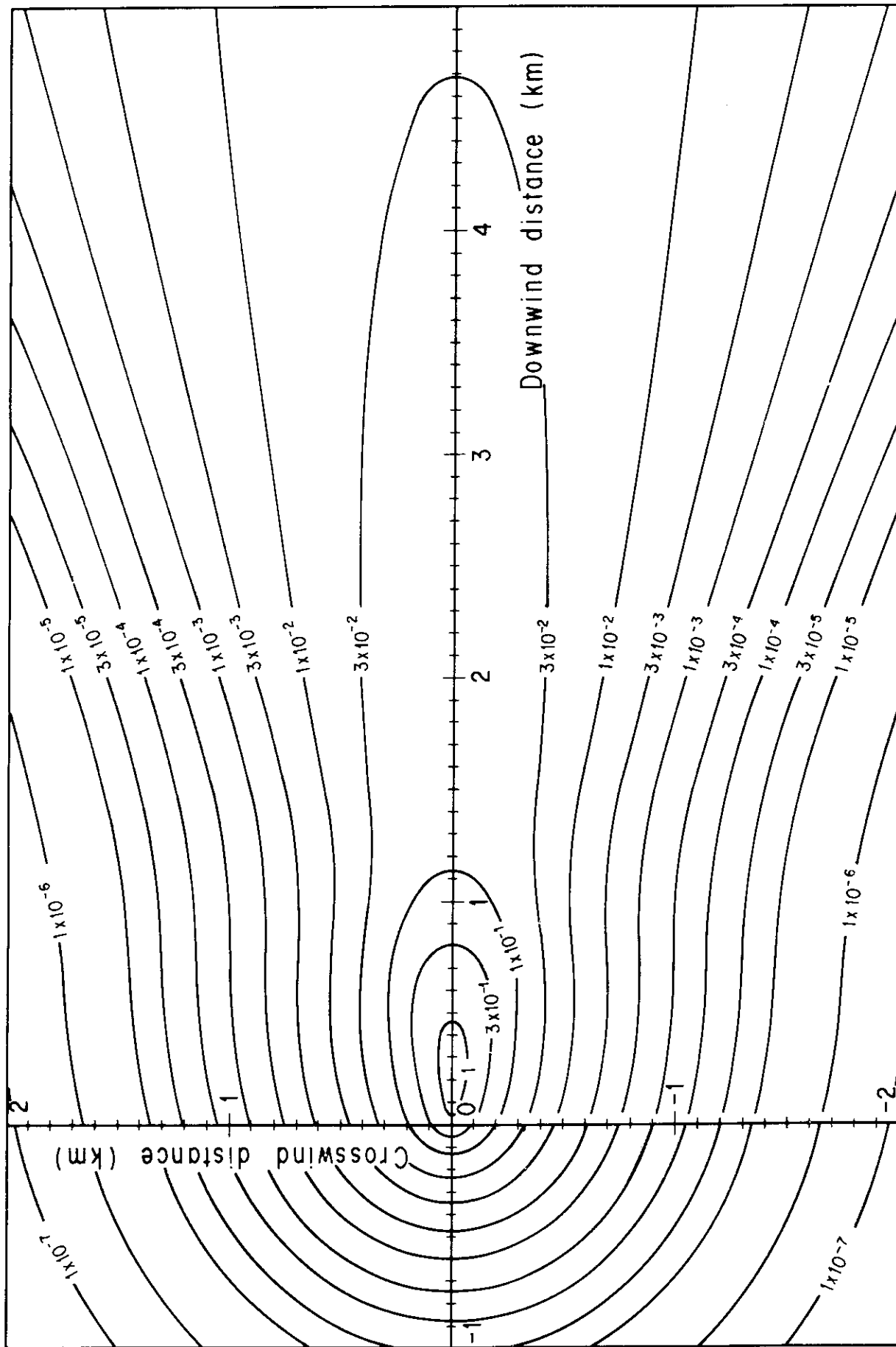


scale : 1 / 50000

Fig.4-6-6 (B) Isopleths of surface air absorbed dose rate

Q : 1 GBq/h Stack height : 50 m
 E : 1 MeV/dis Stability : F
 U : 1 m/s

unit : nGy / h

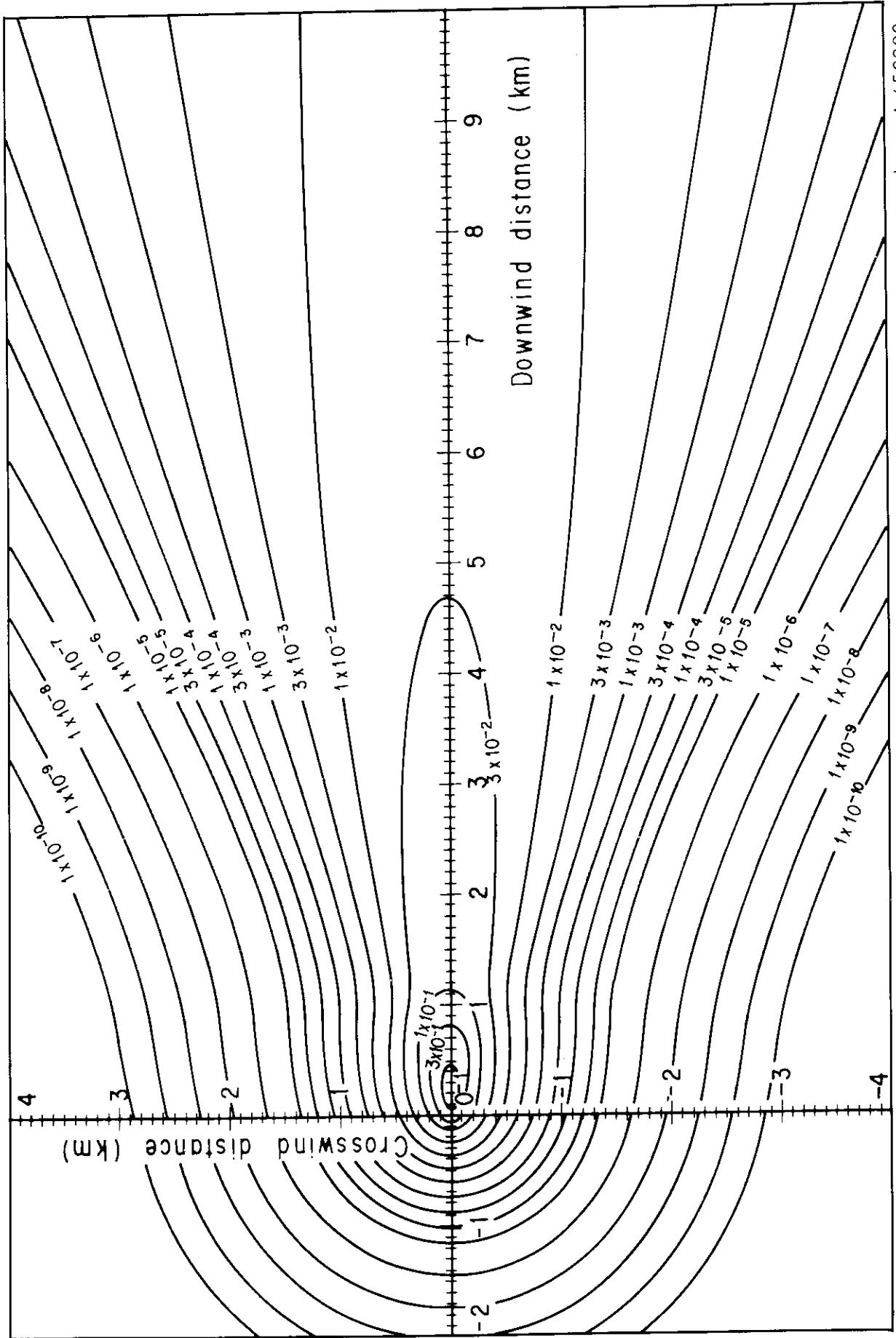


scale : 1 / 25000

Fig.4-7-1 (A) Isopleths of surface air absorbed dose rate

Q : 1 GBq/h Stack height : 60m
 E : 1 MeV/dis Stability : A
 U : 1 m/s

unit : nGy / h



Q : 1 GBq/h Stack height : 60 m
E : 1 MeV/dis Stability : A
U : 1 m/s

Fig.4-7-1 (B) Isopleths of surface air absorbed dose rate

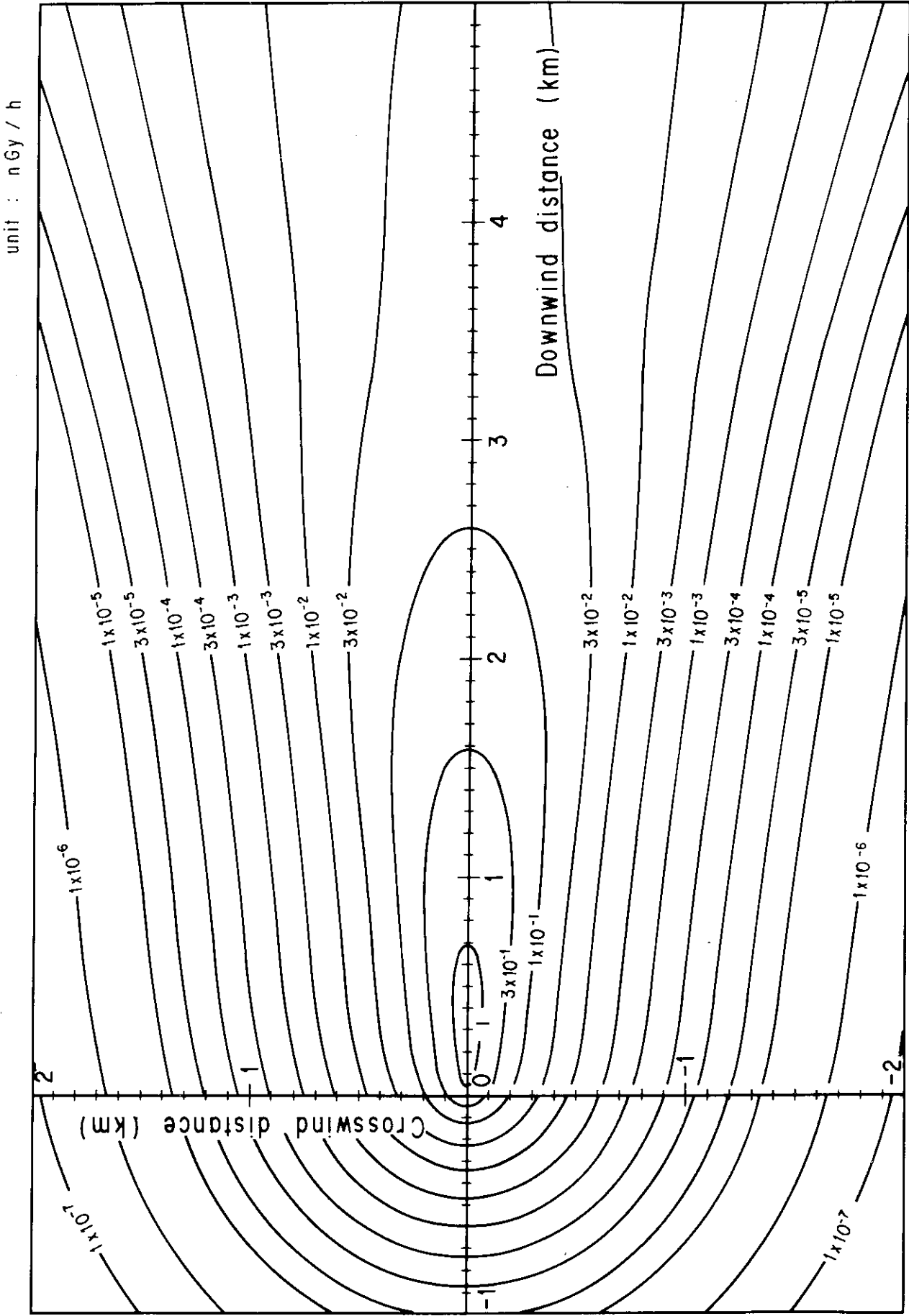
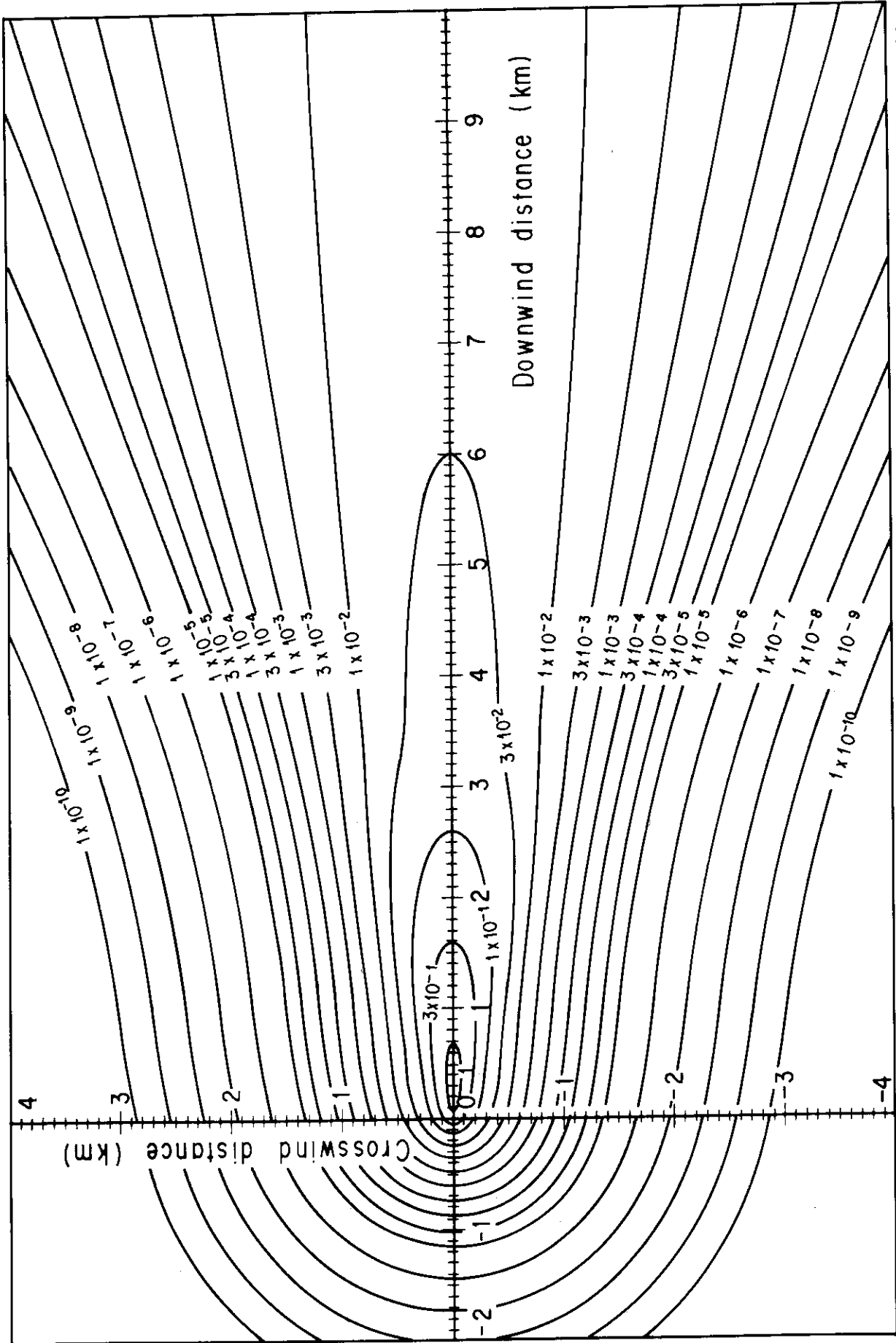


Fig. 4-7-2 (A) Isopleths of surface air absorbed dose rate

unit : nGy / h

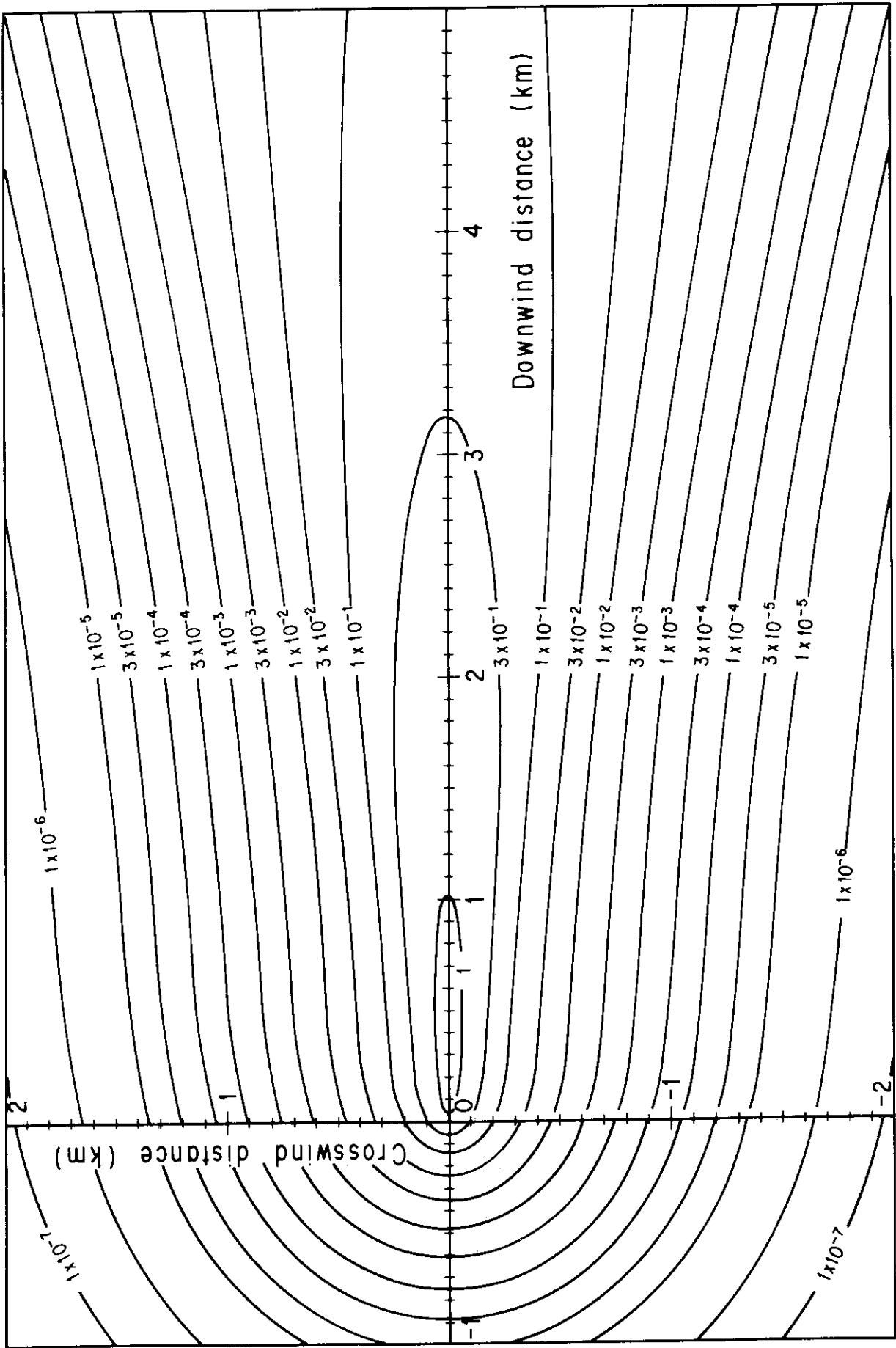


scale : 1 / 50000

Fig.4-7-2 (B) Isopleths of surface air absorbed dose rate

Q : 1 GBq/h Stack height : 60 m
 FE : 1 MeV/dis Stability : B
 U : 1 m/s

unit : nGy / h

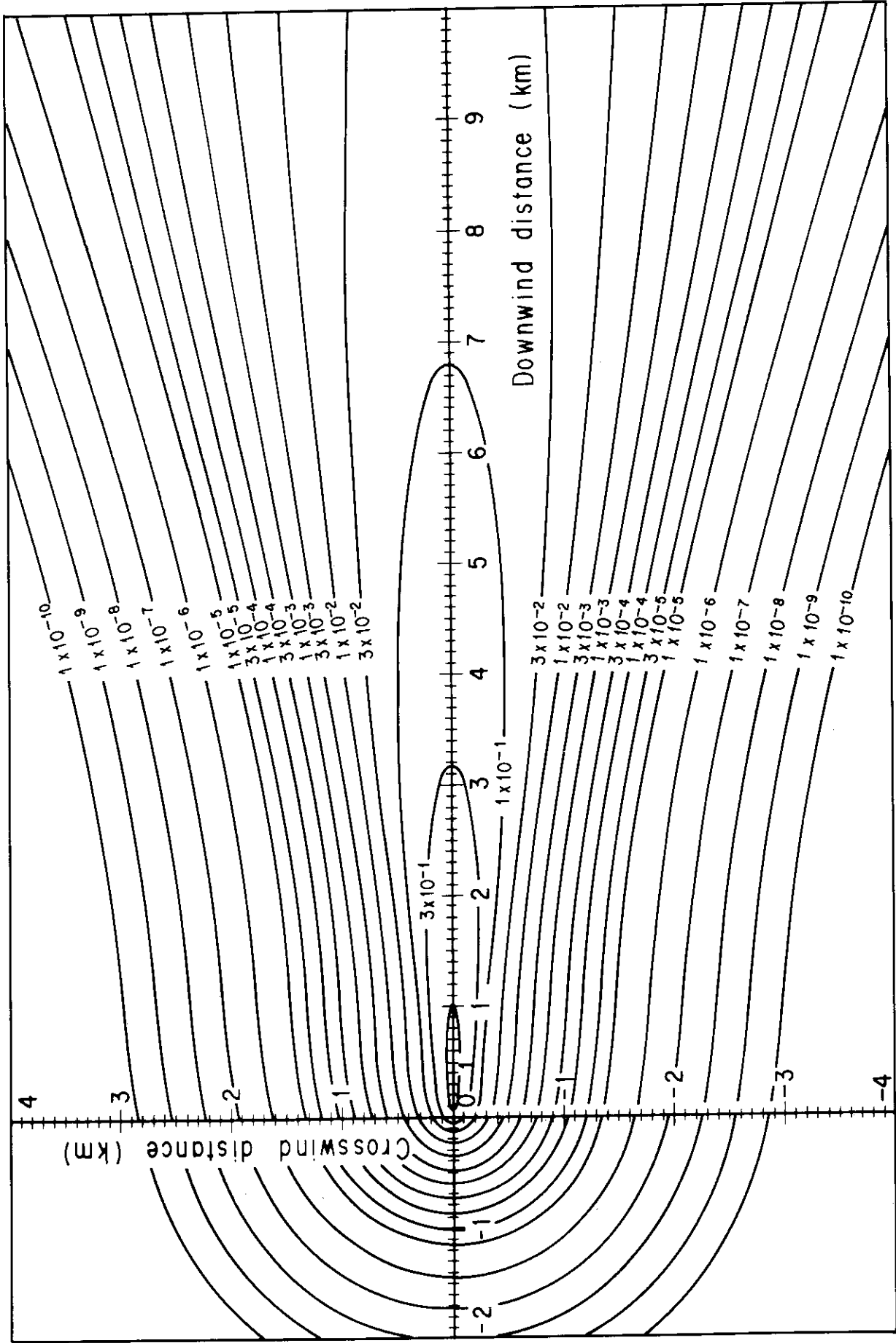


scale : 1 / 25000

Fig.4-7-3 (A) Isopleths of surface air absorbed dose rate

Q : 1 GBq/h Stock height : 60m
 E : 1 MeV/dis Stability : C
 U : 1 m/s

unit : nGy / h

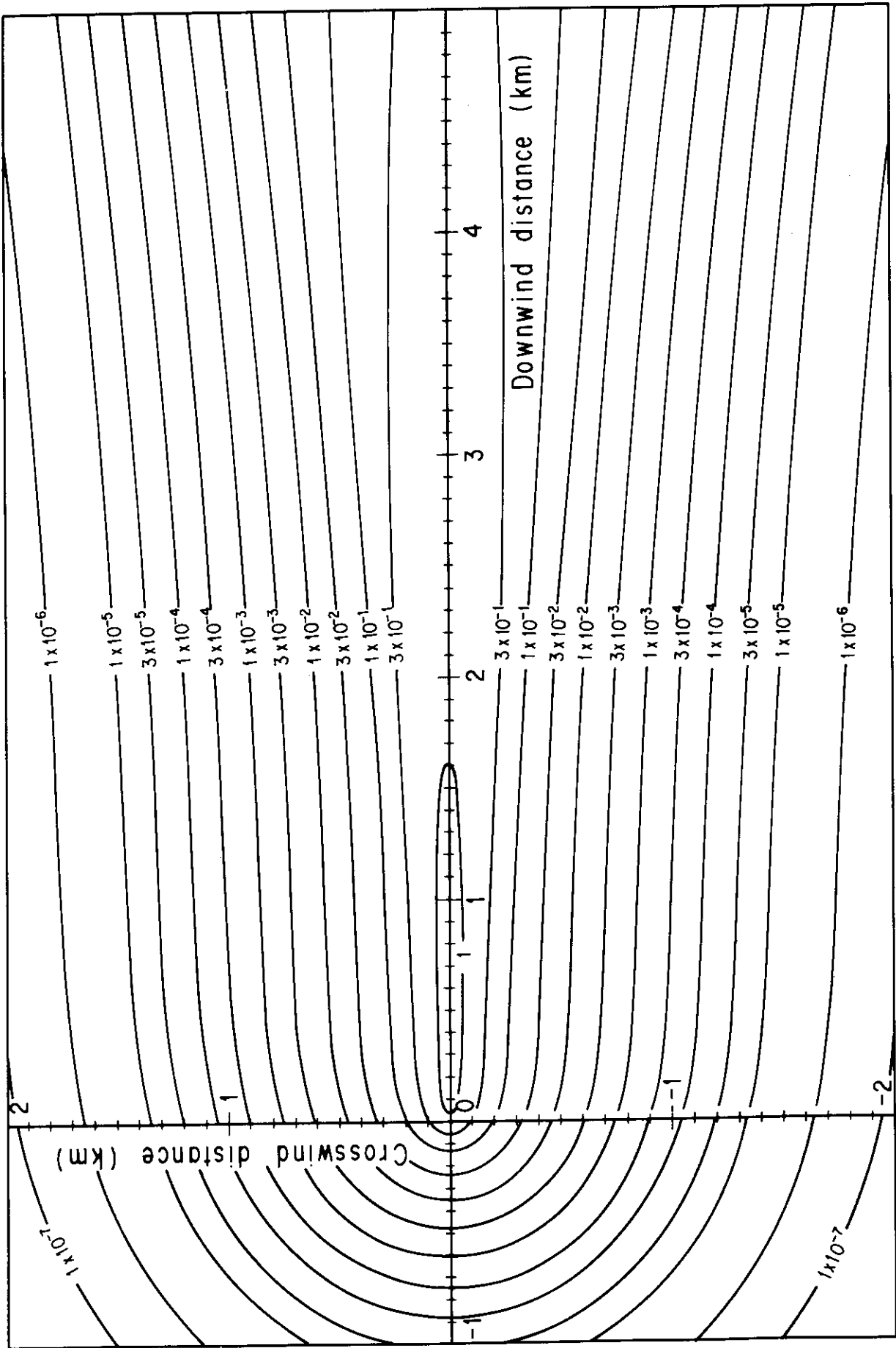


scale : 1 / 50000

Fig.4-7-3 (B) Isopleths of surface air absorbed dose rate

Q : 1 GBq/h Stack height : 60 m
 E : 1 MeV/dis Stability : C
 U : 1 m/s

unit : nGy / h

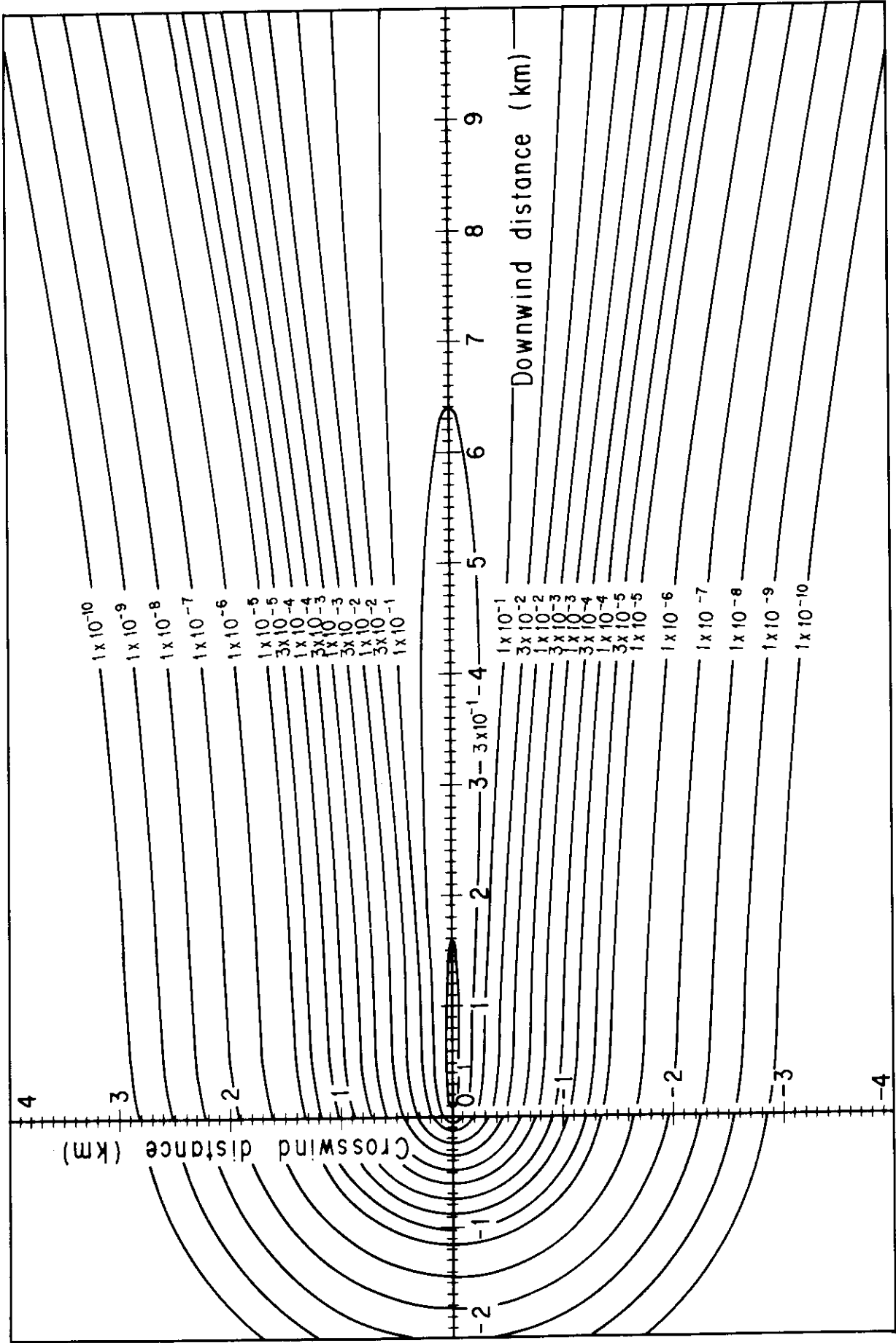


scale : 1 / 25000

Fig. 4-7-4 (A) Isopleths of surface air absorbed dose rate

Q : 1 GBq/h Stack height : 60m
 E : 1 MeV/dis Stability : D
 U : 1 m/s

unit : nGy / h

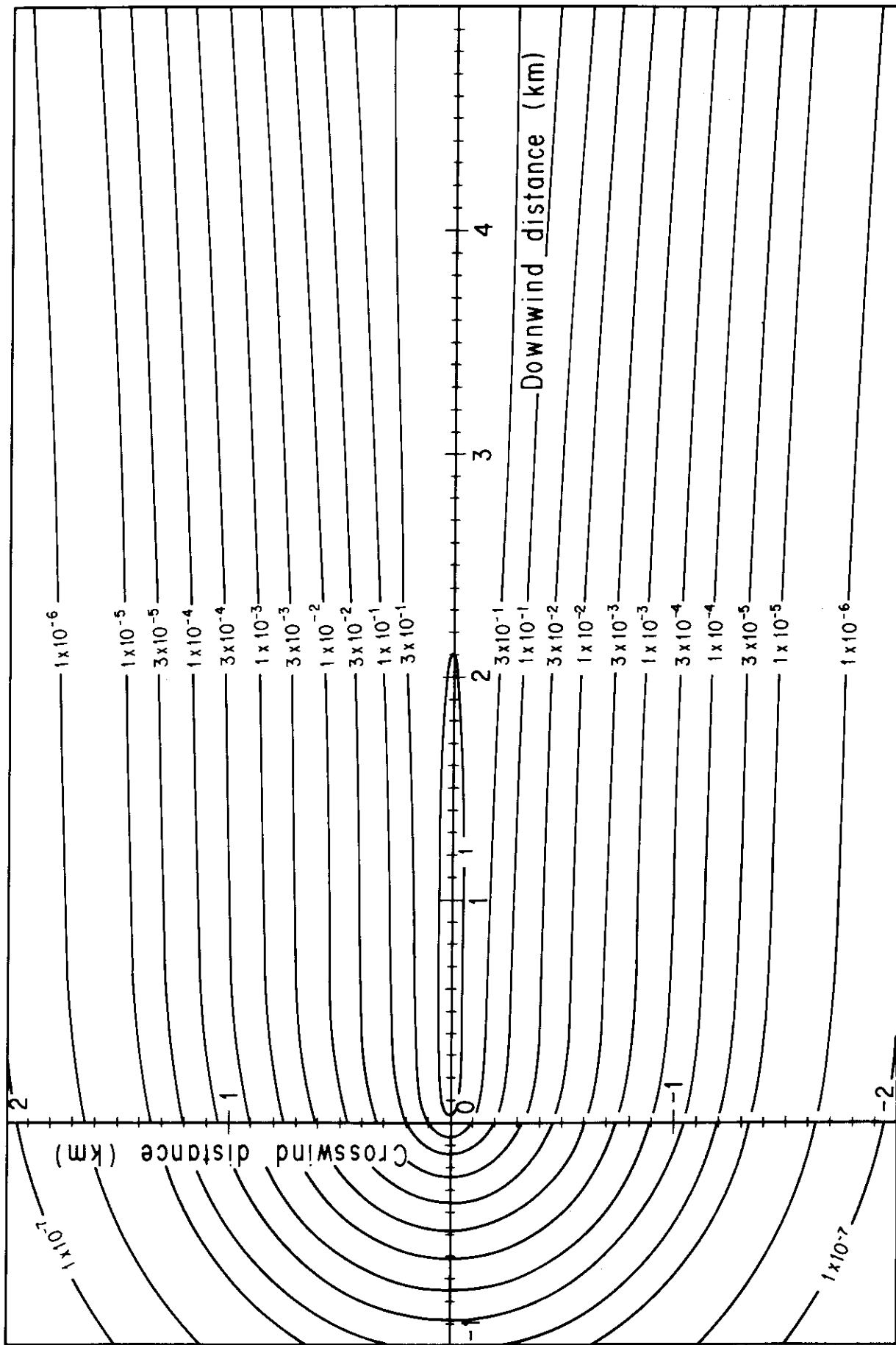


Q : 1 GBq/h Stack height : 60 m
 E : 1 MeV/dis Stability : D
 U : 1 m/s

scale : 1 / 50000

Fig.4-7-4 (B) Isopleths of surface air absorbed dose rate

unit : nGy / h

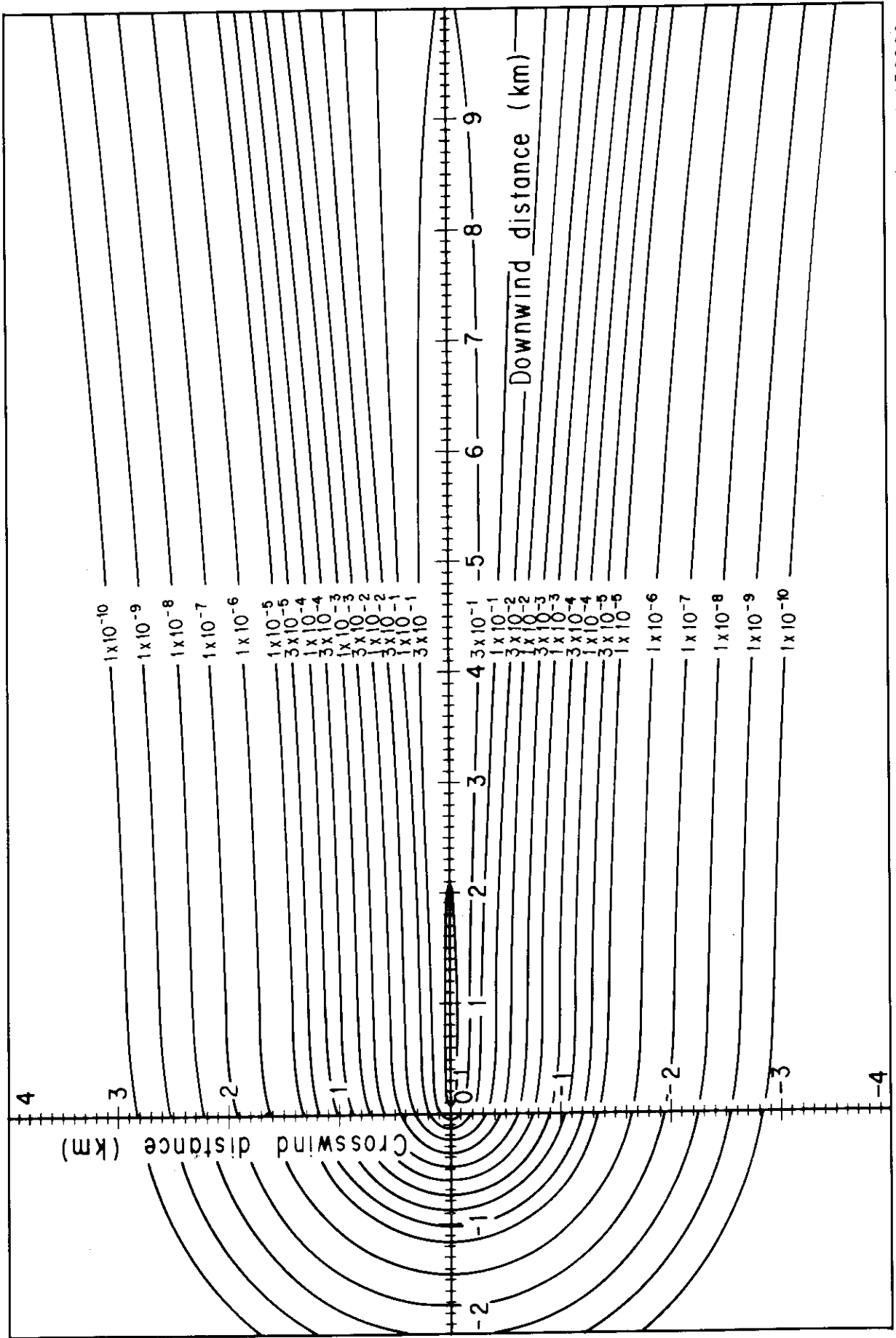


Q : 1 GBq/h Stack height : 60 m
 E : 1 MeV/dis Stability : E
 U : 1 m/s

scale : 1 / 25000

Fig. 4-7-5 (A) Isopleths of surface air absorbed dose rate

unit : nGy / h

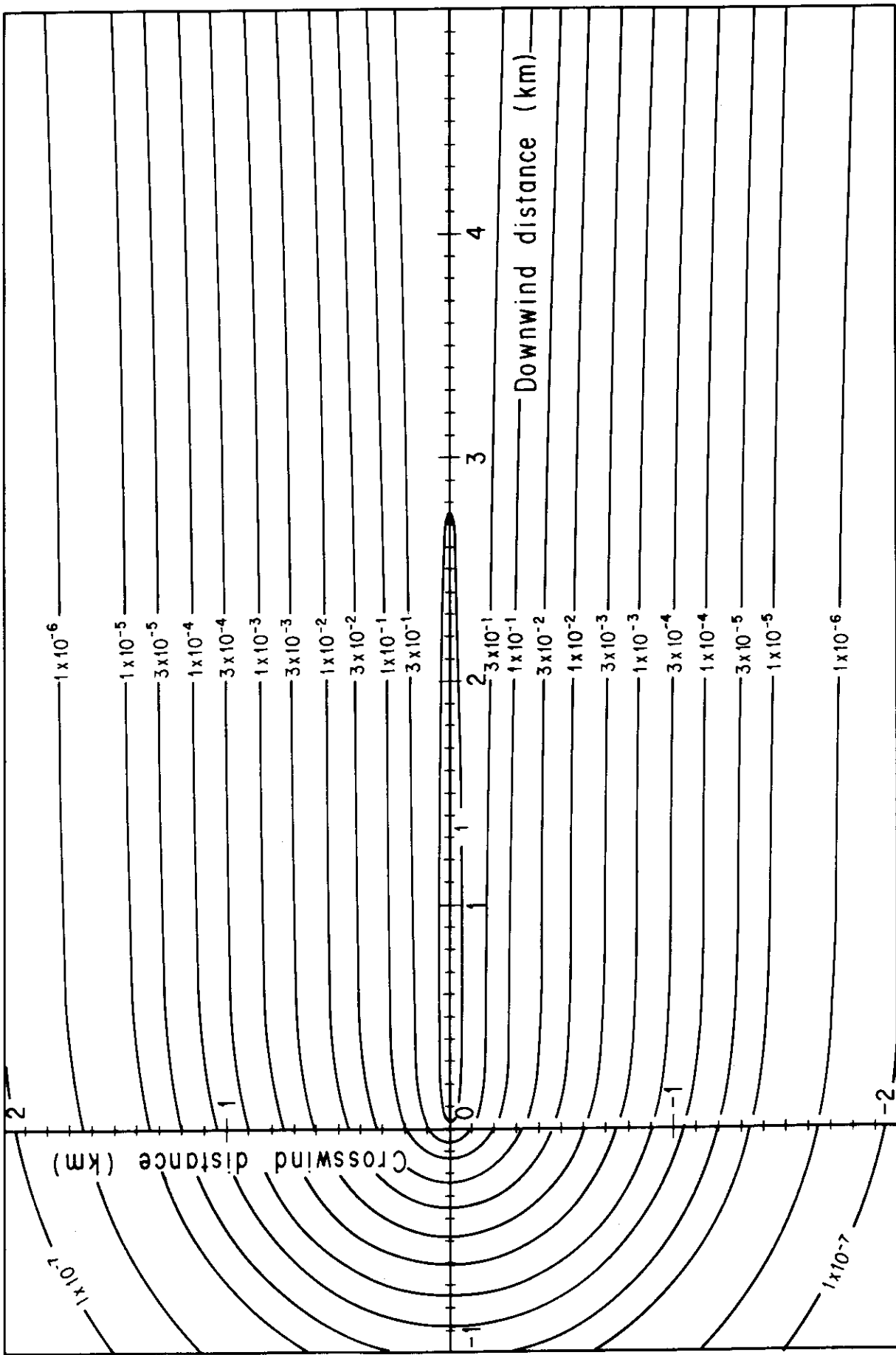


scale : 1 / 50000

Fig.4-7-5 (B) Isopleths of surface air absorbed dose rate

Q : 1 GBq/h Stack height : 60 m
 E : 1 MeV/dis Stability
 U : 1 m/s

unit : nGy / h

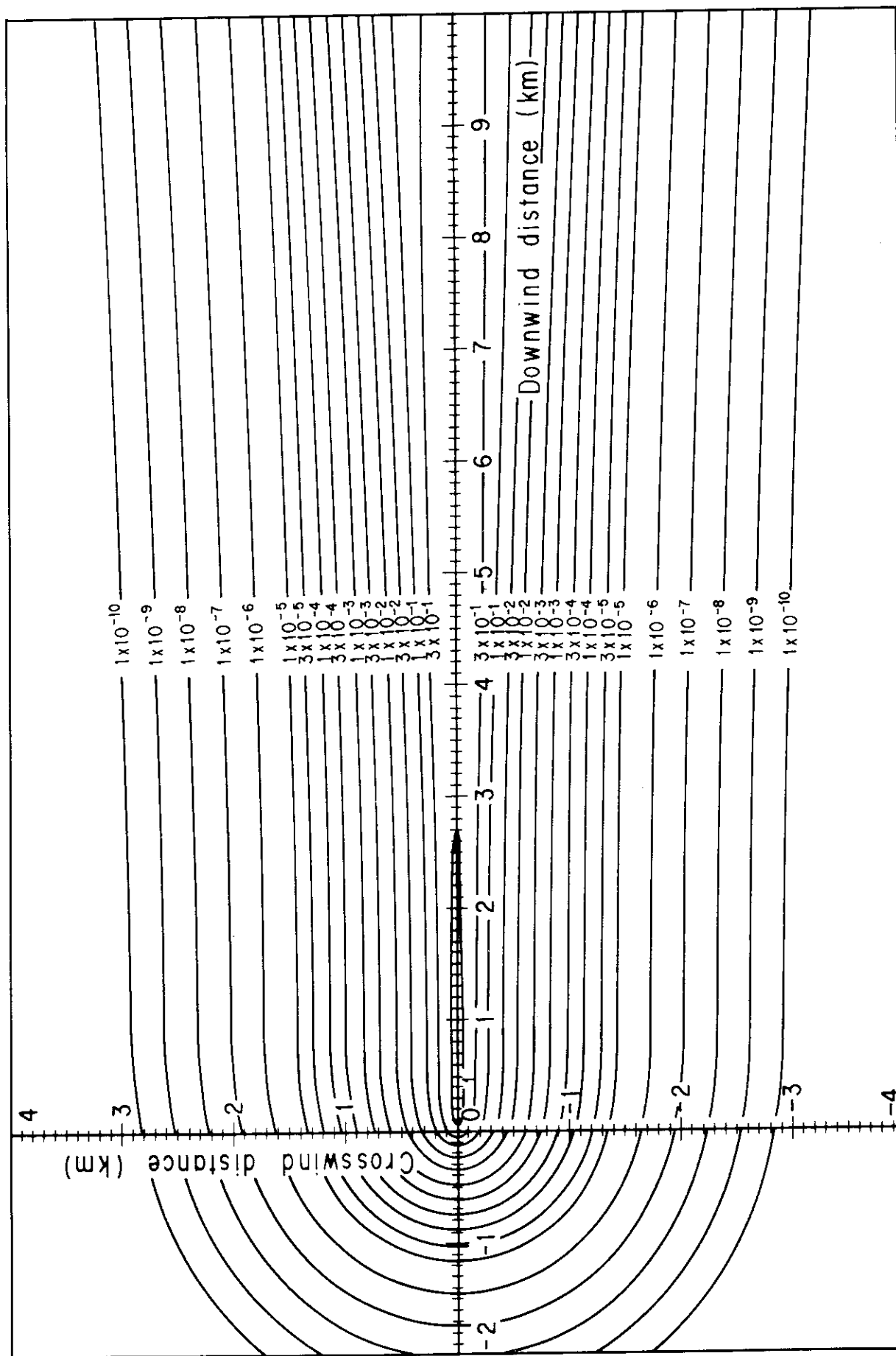


scale : 1 / 25000

Fig. 4-7-6 (A) Isopleths of surface air absorbed dose rate

Q : 1 GBq/h Stack height : 60m
 E : 1 MeV/dis Stability : F
 U : 1 m/s

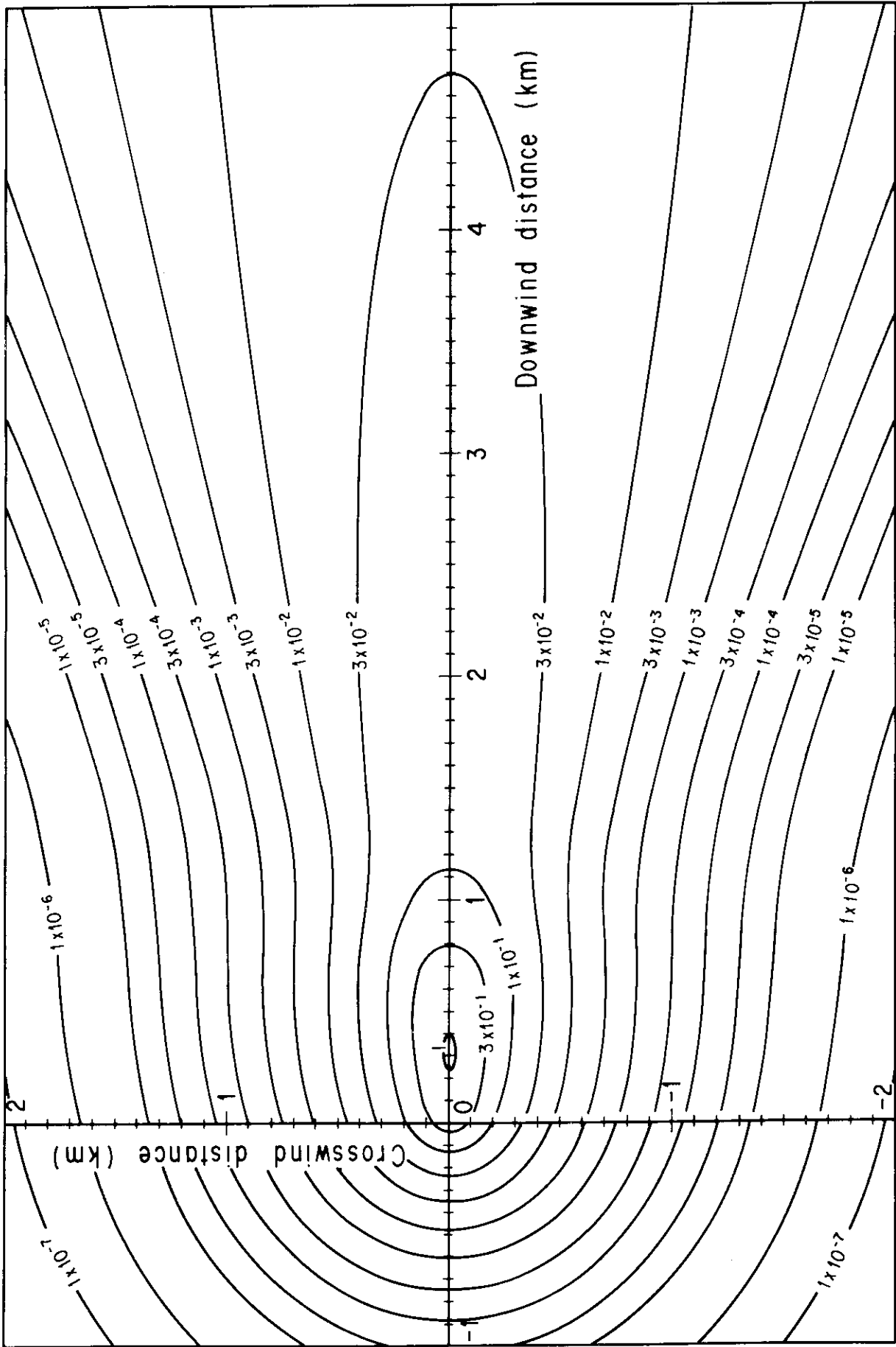
unit : nGy / h



scale : 1 / 50000

Fig.4-7-6 (B) Isopleths of surface air absorbed dose rate

unit : nGy / h

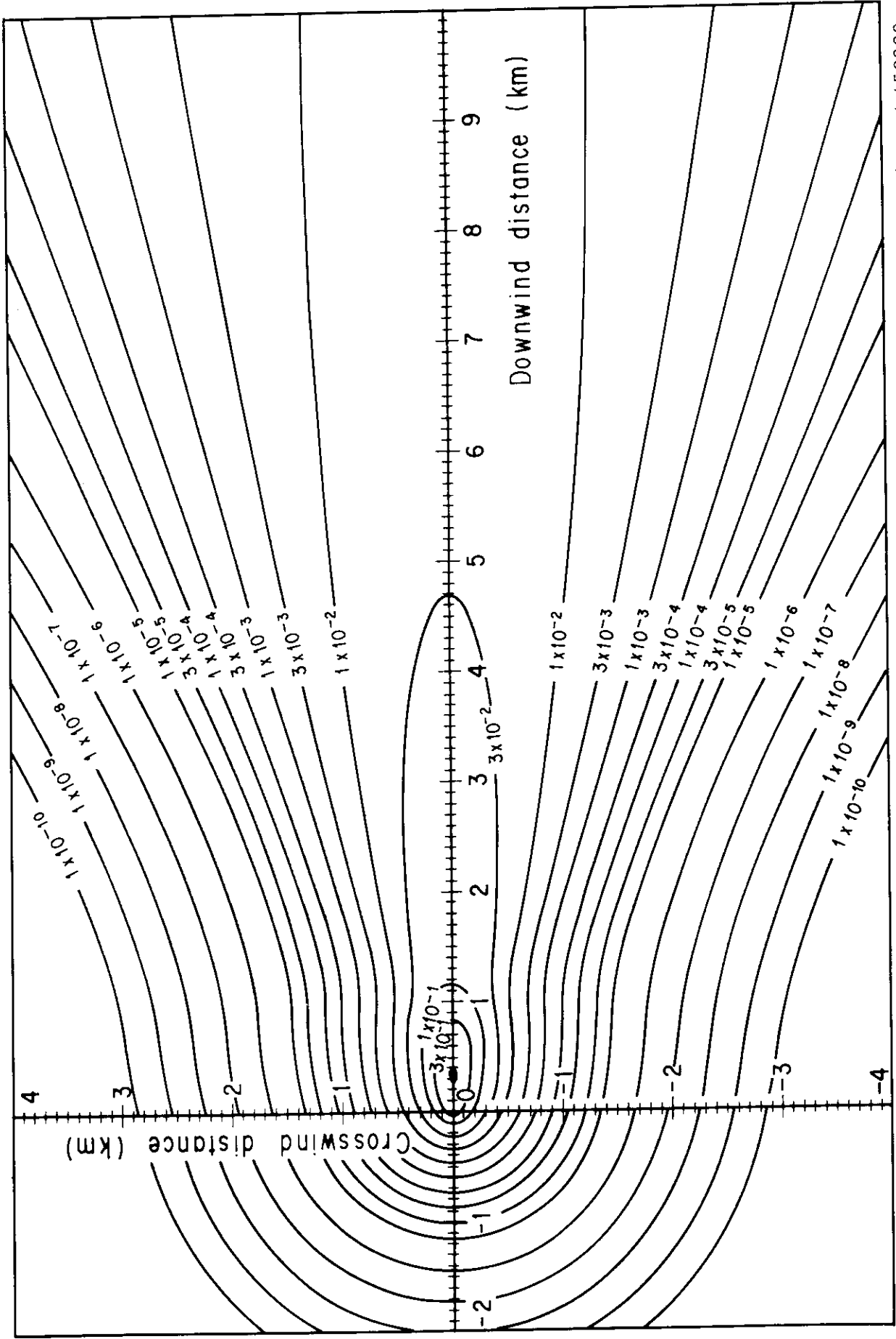


scale : 1 / 25000

Fig.4-8-1 (A) Isopleths of surface air absorbed dose rate

Q : 1 GBq/h Stack height : 80 m
 E : 1 MeV/dis Stability : A
 U : 1 m/s

unit : nGy / h

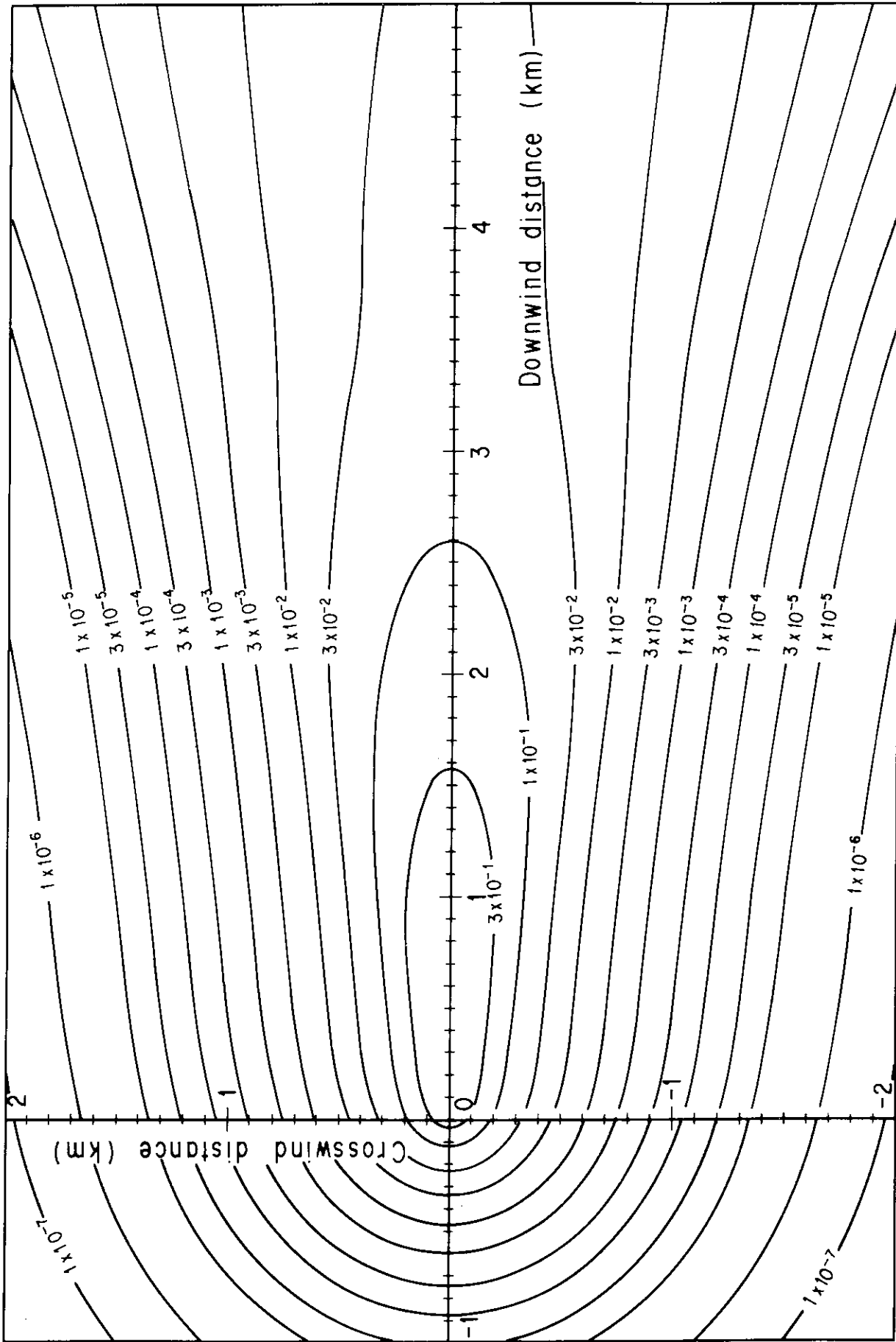


scale : 1 / 50000

Fig.4-8-1 (B) Isopleths of surface air absorbed dose rate

Q : 1 GBq/h Stack height : 80 m
 E : 1 MeV/dis Stability : A
 U : 1 m/s

unit : nGy / h



Q : 1 GBq/h Stack height : 80m
 E : 1 MeV/dis Stability : B
 U : 1 m/s

scale : 1/25000

Fig. 4-8-2 (A) Isopleths of surface air absorbed dose rate

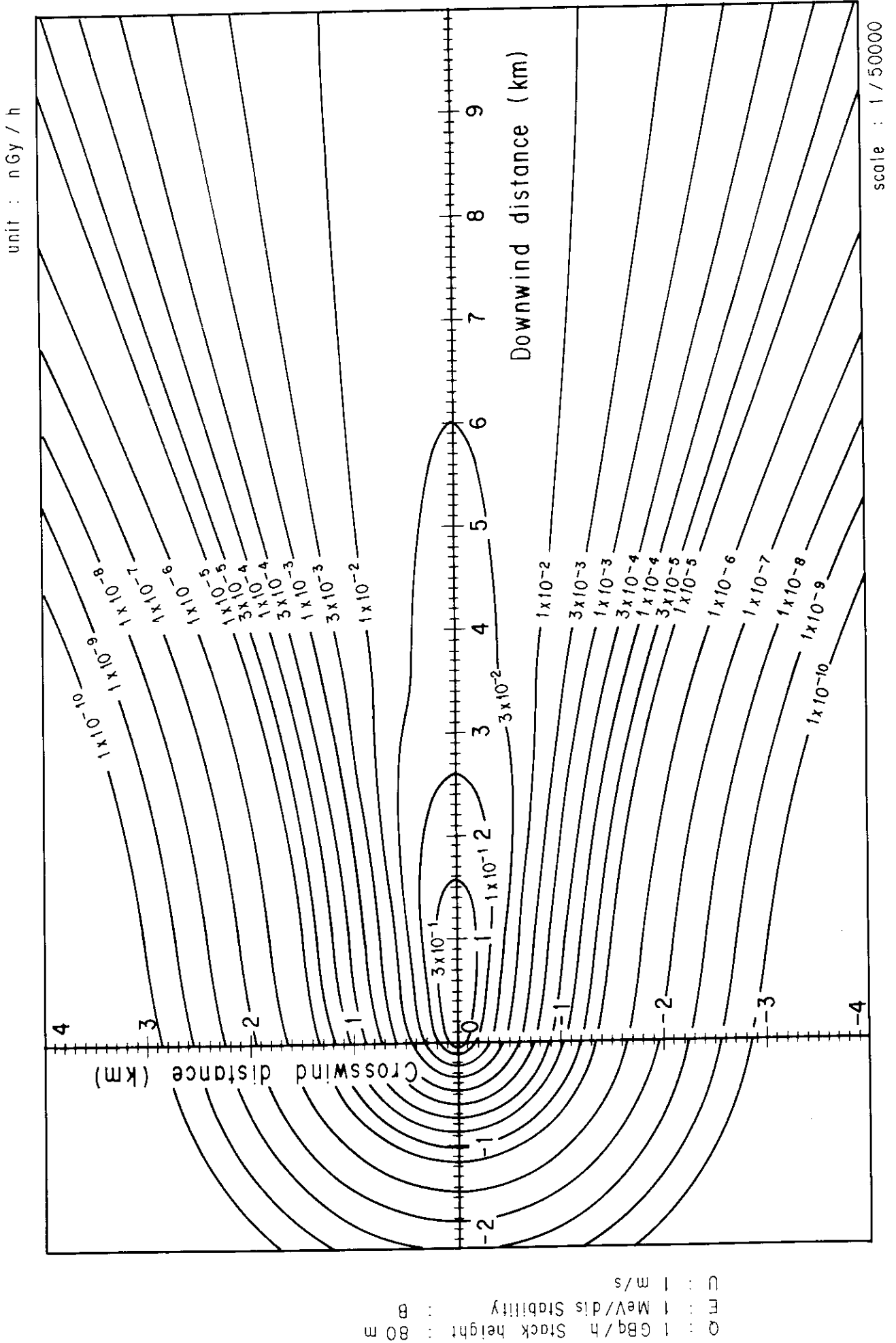
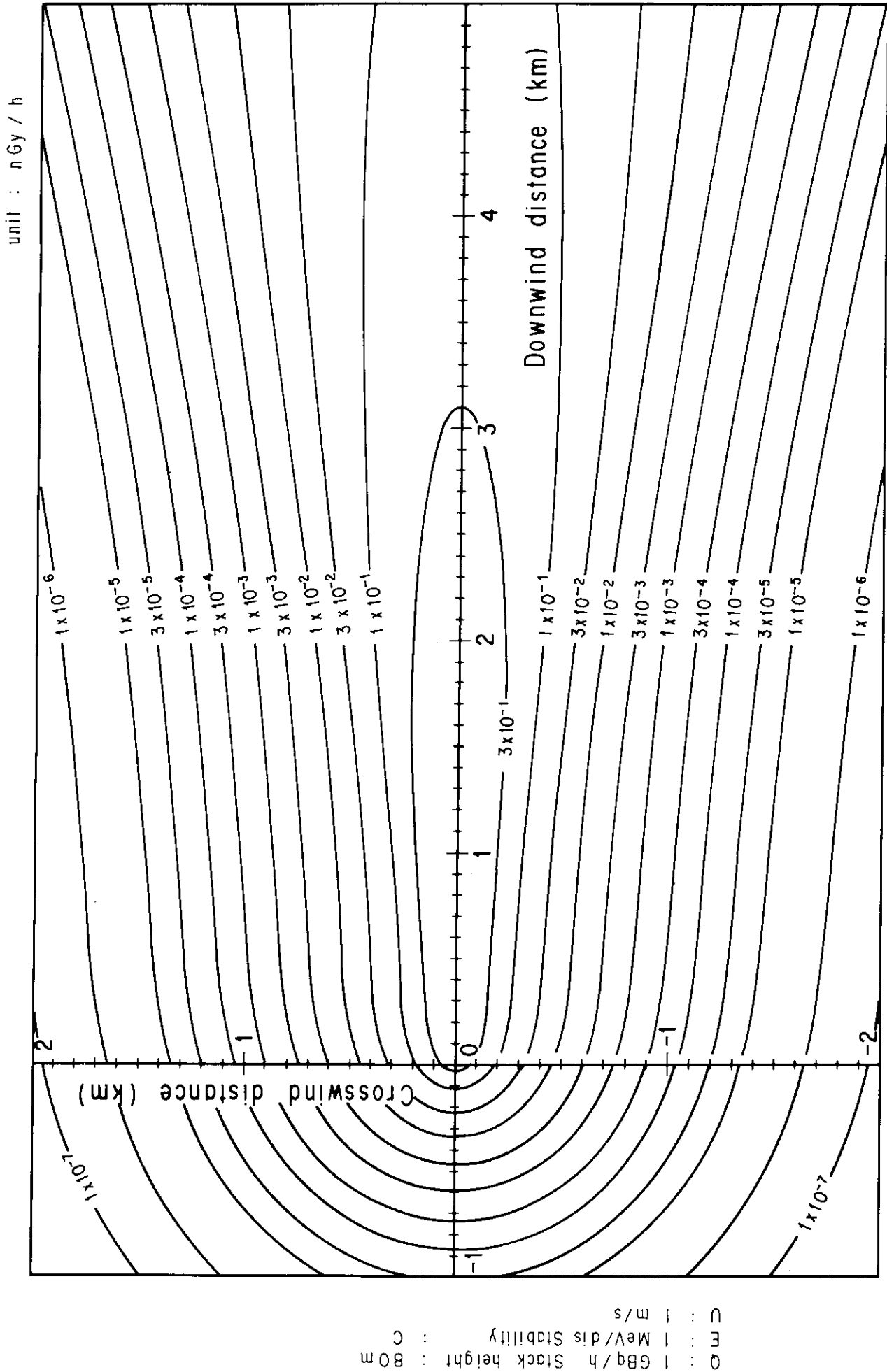


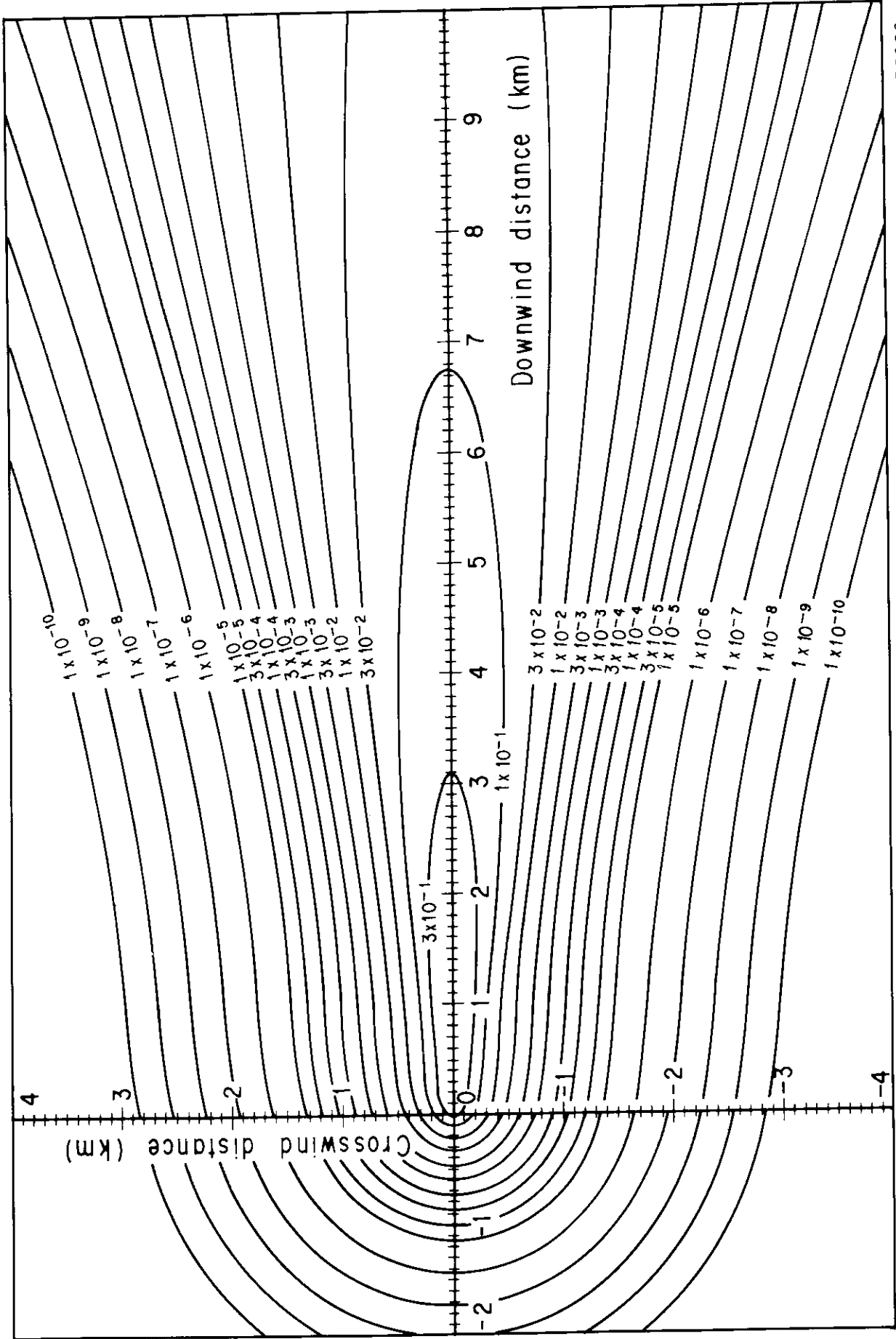
Fig.4-8-2 (B) Isopleths of surface air absorbed dose rate



scale : 1 / 25000

Fig. 4-8-3 (A) Isopleths of surface air absorbed dose rate

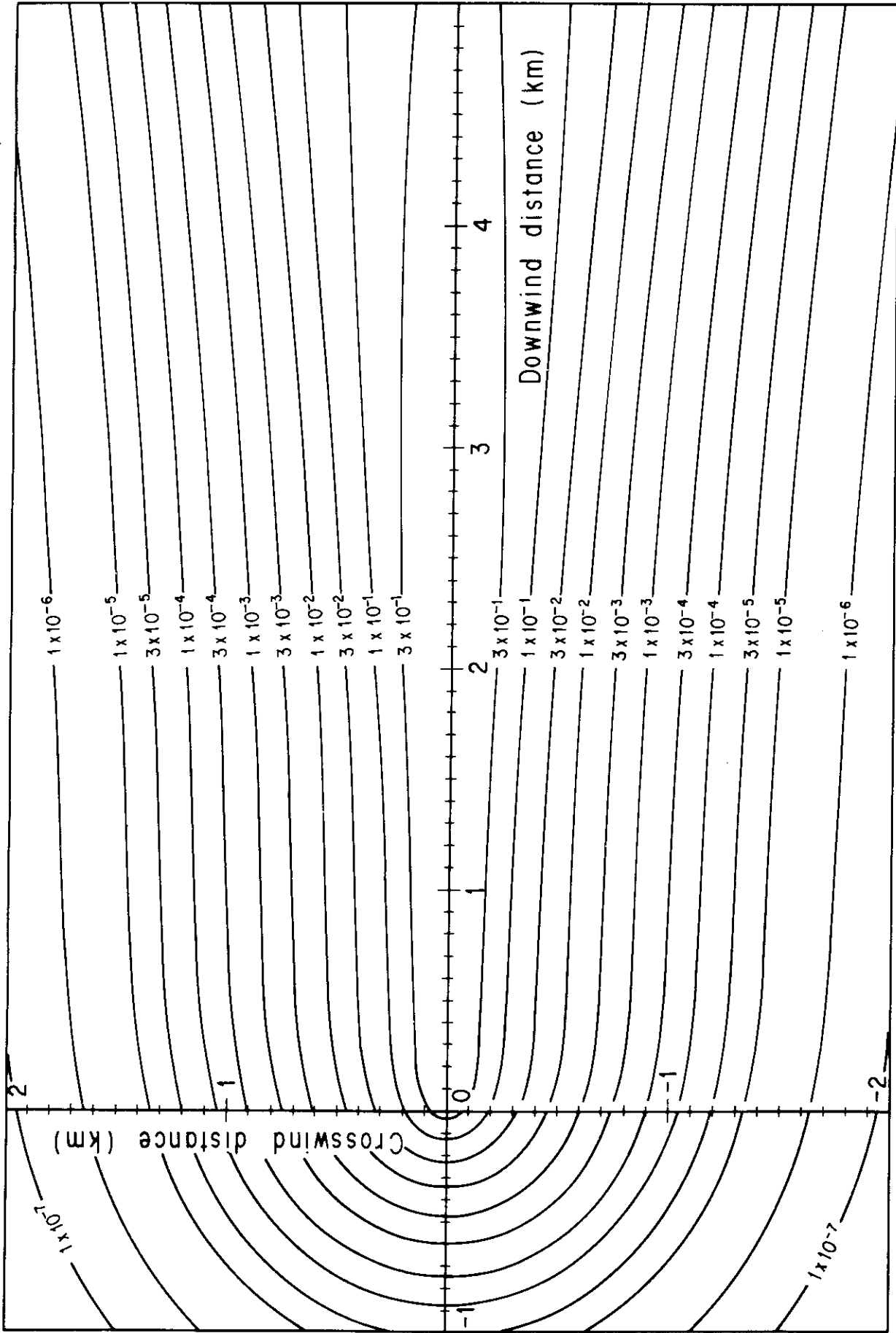
unit : nGy / h



Q : 1 GBq/h Stack height : 80 m
 E : 1 MeV/dis Stability : C
 U : 1 m/s

Fig.4-8-3 (B) Isopleths of surface air absorbed dose rate

unit : nGy / h

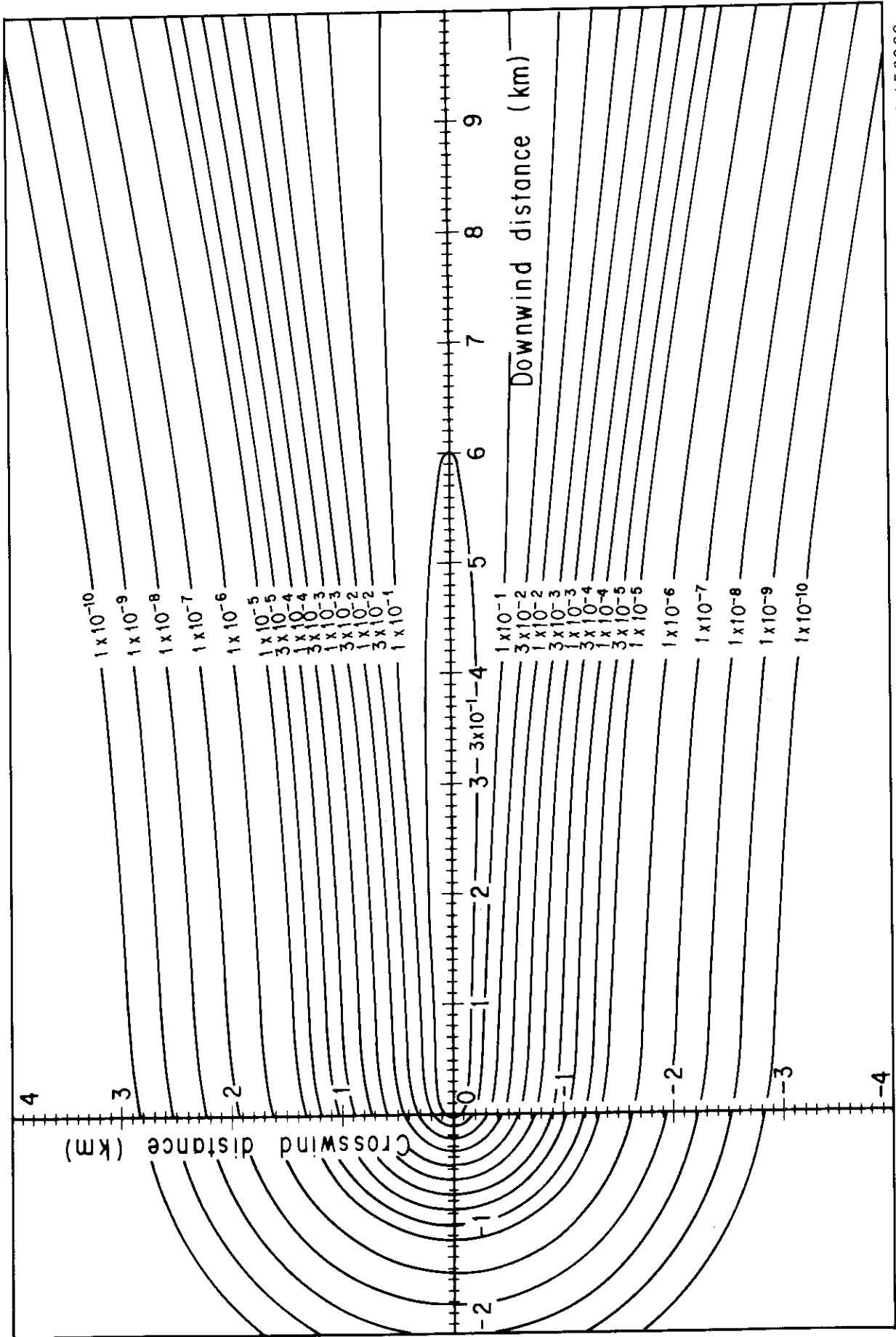


scale : 1 / 25000

Fig. 4-8-4 (A) Isopleths of surface air absorbed dose rate

Q : 1 GBq/h Stack height : 80m
 E : 1 MeV/dis Stability : D
 U : 1 m/s

unit : nGy / h

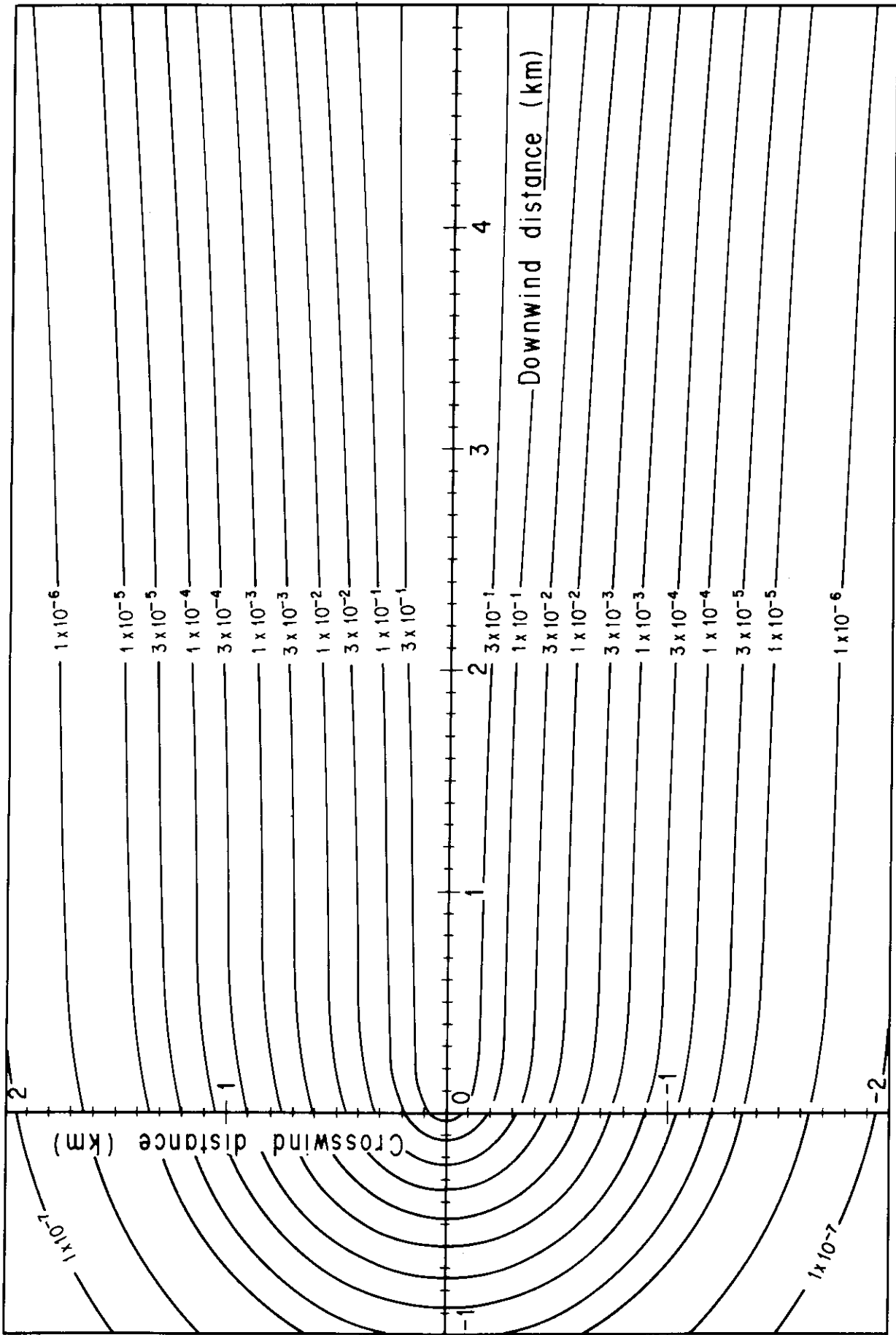


scale : 1 / 50000

Fig.4-8-4 (B) Isopleths of surface air absorbed dose rate

Q : 1 GBq/h Stack height : 80 m
 E : 1 MeV/ds Stability : D
 U : 1 m/s

unit : nGy / h

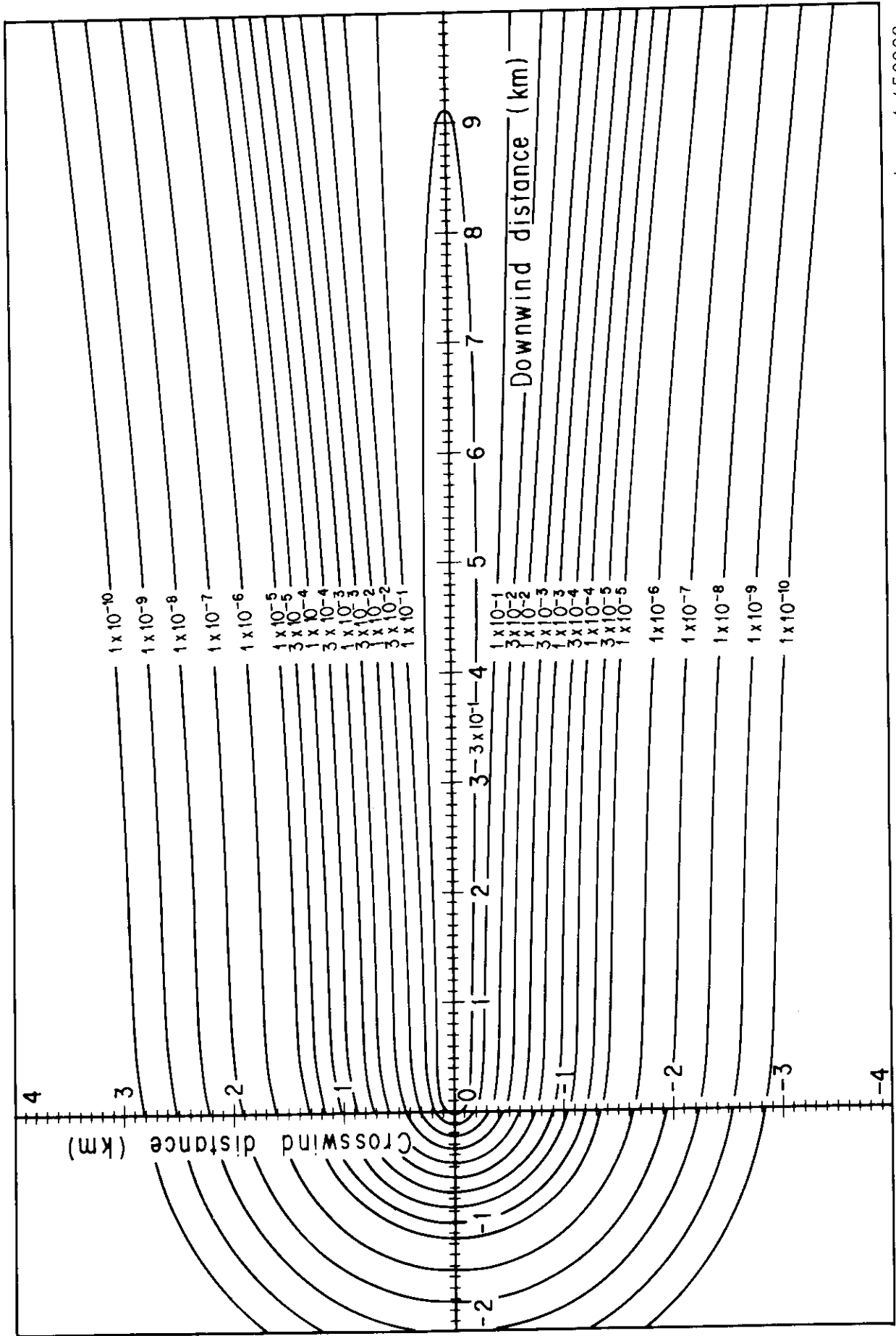


Q : 1 GBq/h Stack height : 80 m
 E : 1 MeV/dis Stability : E
 U : 1 m/s

scale : 1/25000

Fig.4-8-5 (A) Isopleths of surface air absorbed dose rate

unit : nGy / h

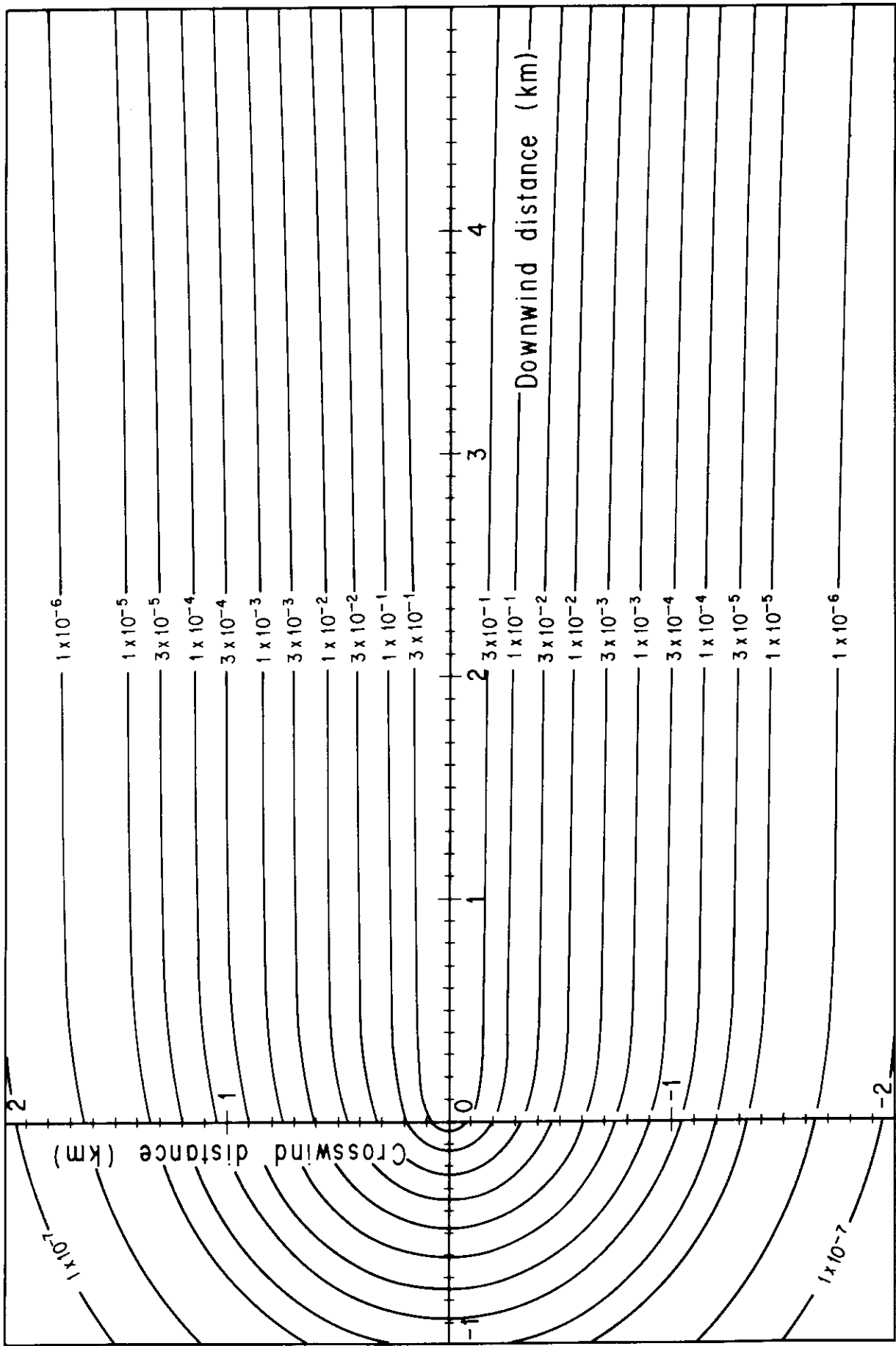


scale : 1 / 50000

Fig.4-8-5 (B) Isopleths of surface air absorbed dose rate

Q : 1 GBq/h Stack height : 80 m
 E : 1 MeV/dis Stability : F
 U : 1 m/s

unit : nGy / h

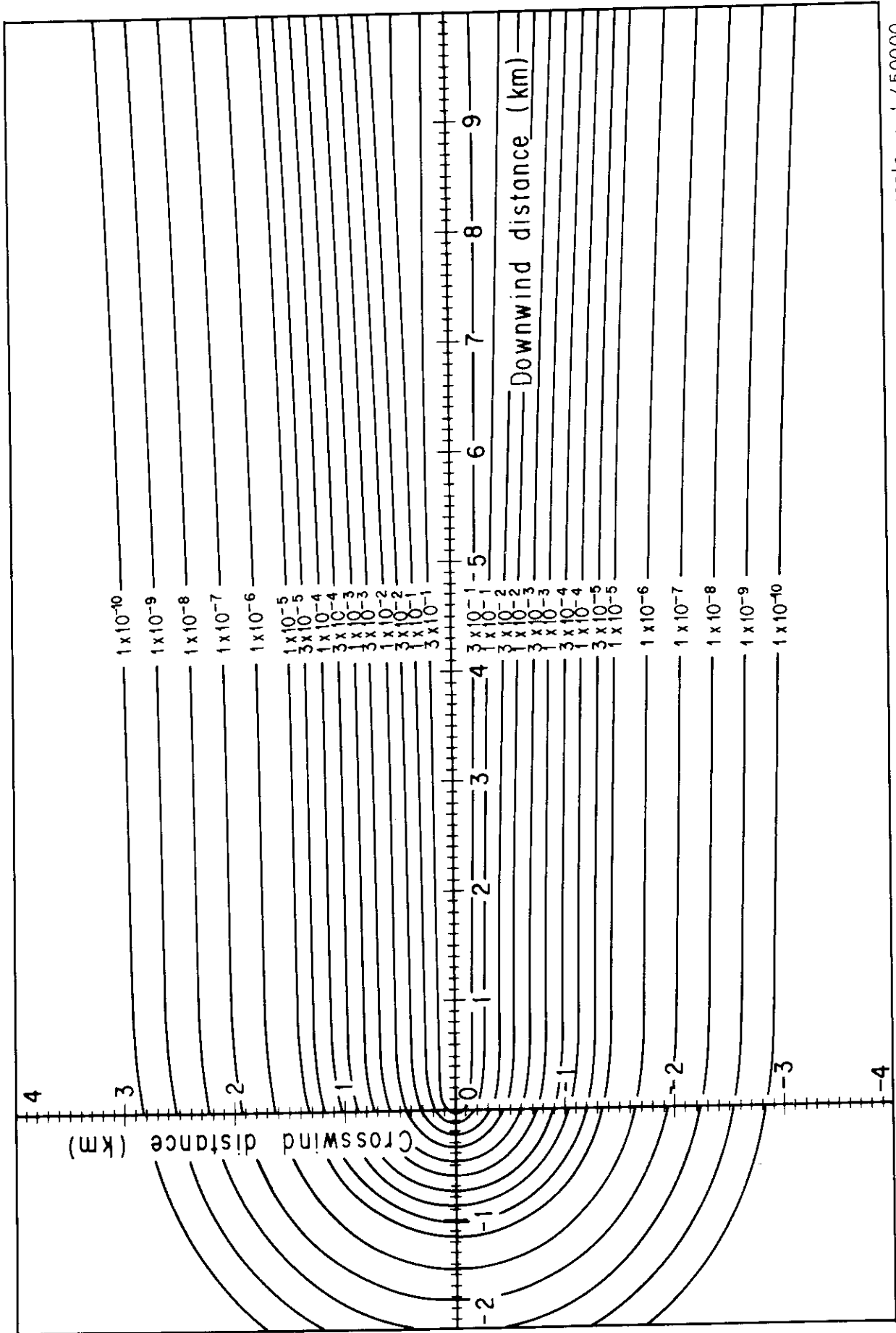


Q : 1 GBq/h Stack height : 80m
E : 1 MeV/dis Stability : F
U : 1 m/s

scale : 1 / 25000

Fig.4-8-6 (A) Isopleths of surface air absorbed dose rate

unit : nGy / h



Q : 1 GBq/h Stack height : 80 m
 E : 1 MeV/dis Stability : F
 U : 1 m/s

scale : 1 / 50000

Fig.4-8-6 (B) Isopleths of surface air absorbed dose rate

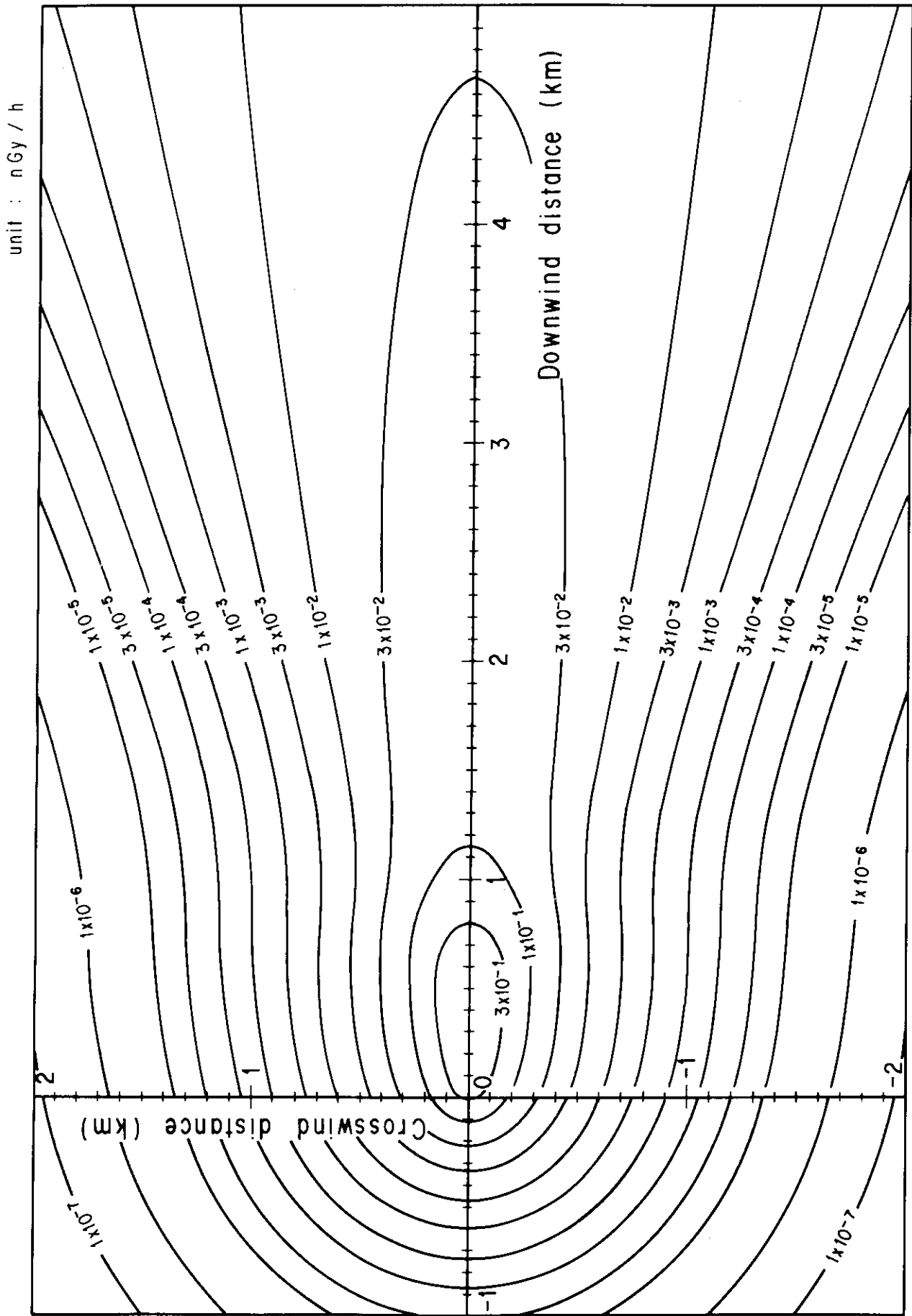


Fig.4-9-1 (A) Isopleths of surface air absorbed dose rate

Q : 1 GBq/h Stack height : 100m
 E : 1 MeV/dis Stability : A
 U : 1 m/s

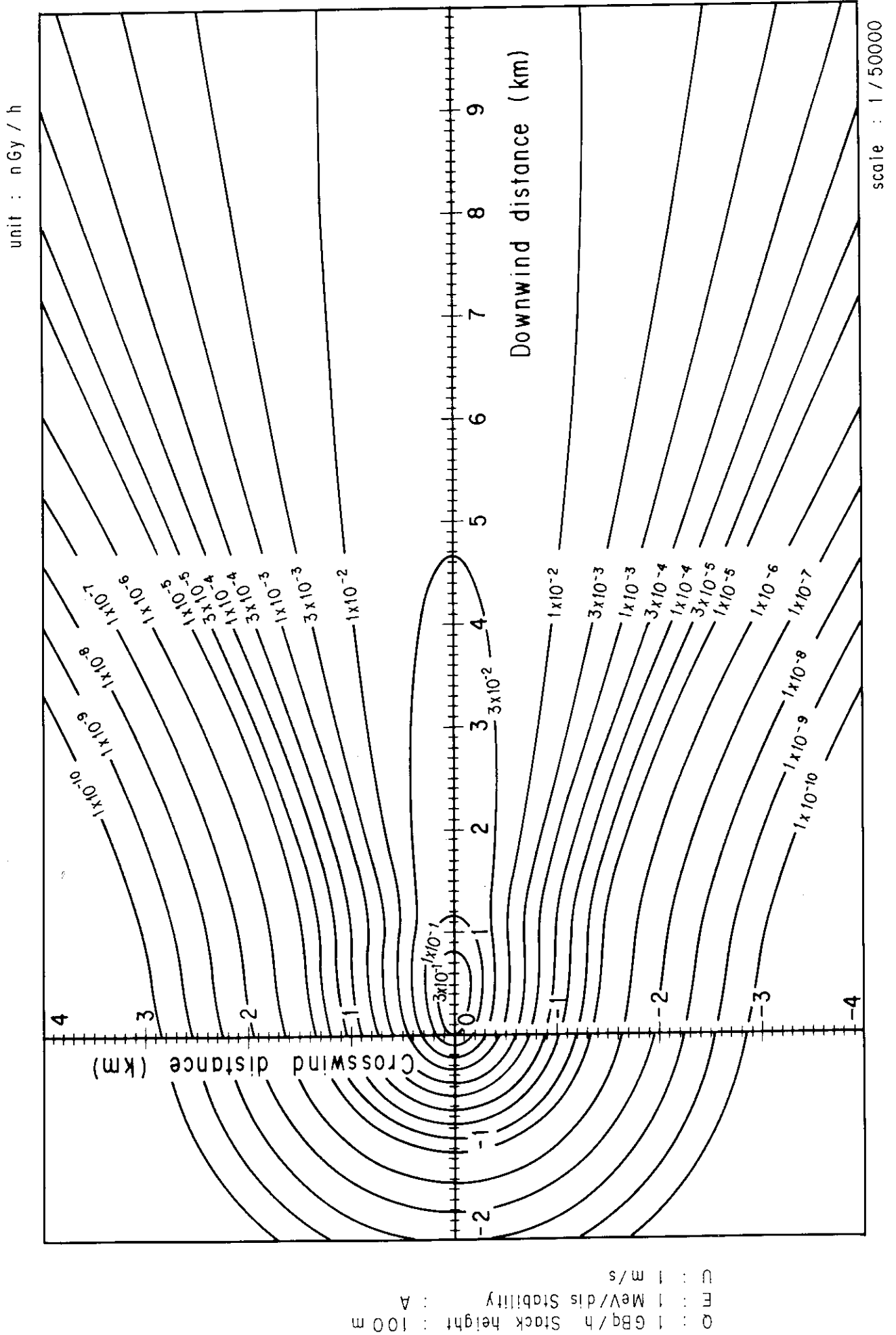
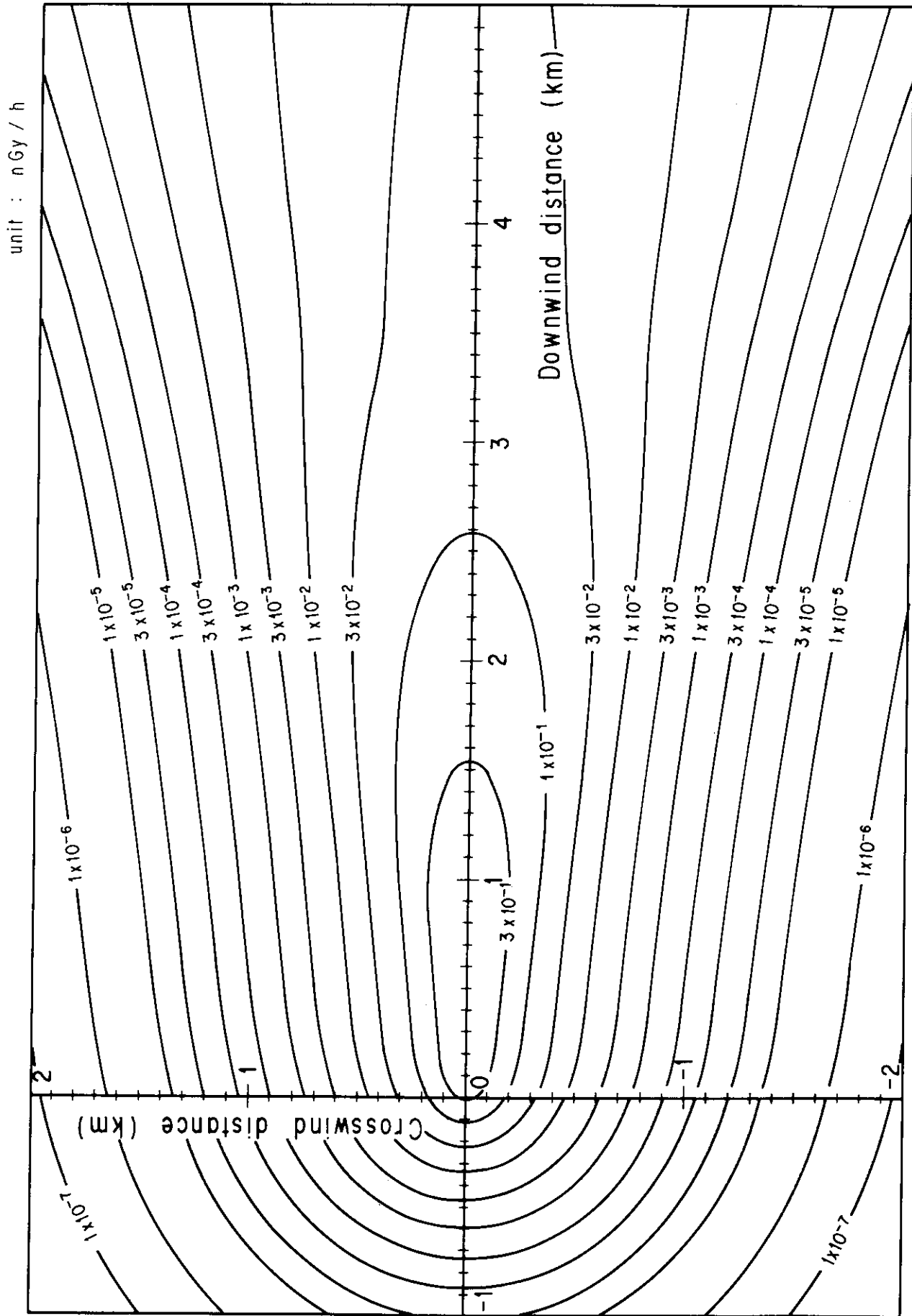


Fig.4-9-1 (B) Isopleths of surface air absorbed dose rate

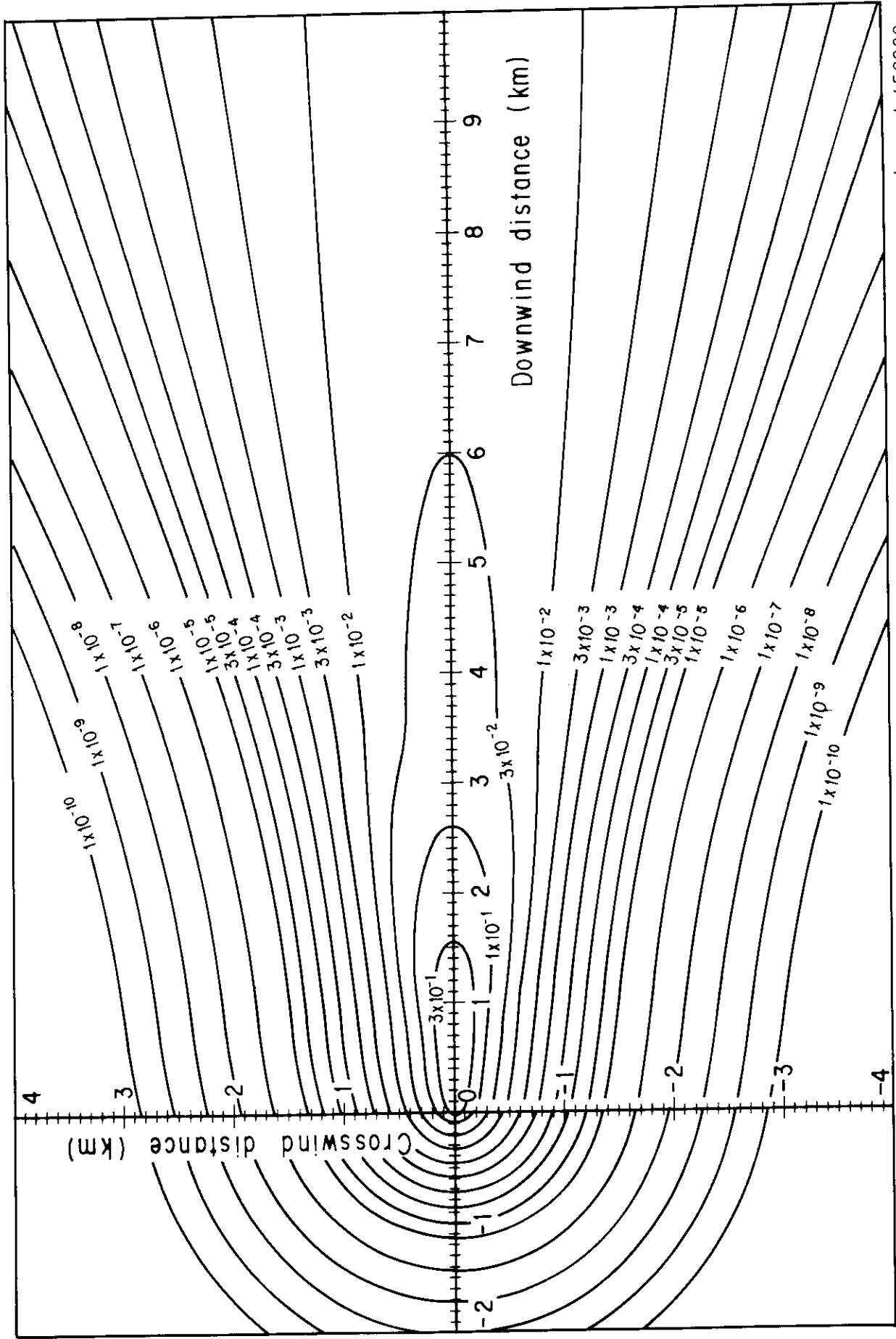


scale : 1 / 25000

Fig. 4-9-2 (A) Isopleths of surface air absorbed dose rate

Q : 1 GBq/h Stack height : 100m
 E : 1 MeV/dis Stability : B
 U : 1 m/s

unit : nGy / h

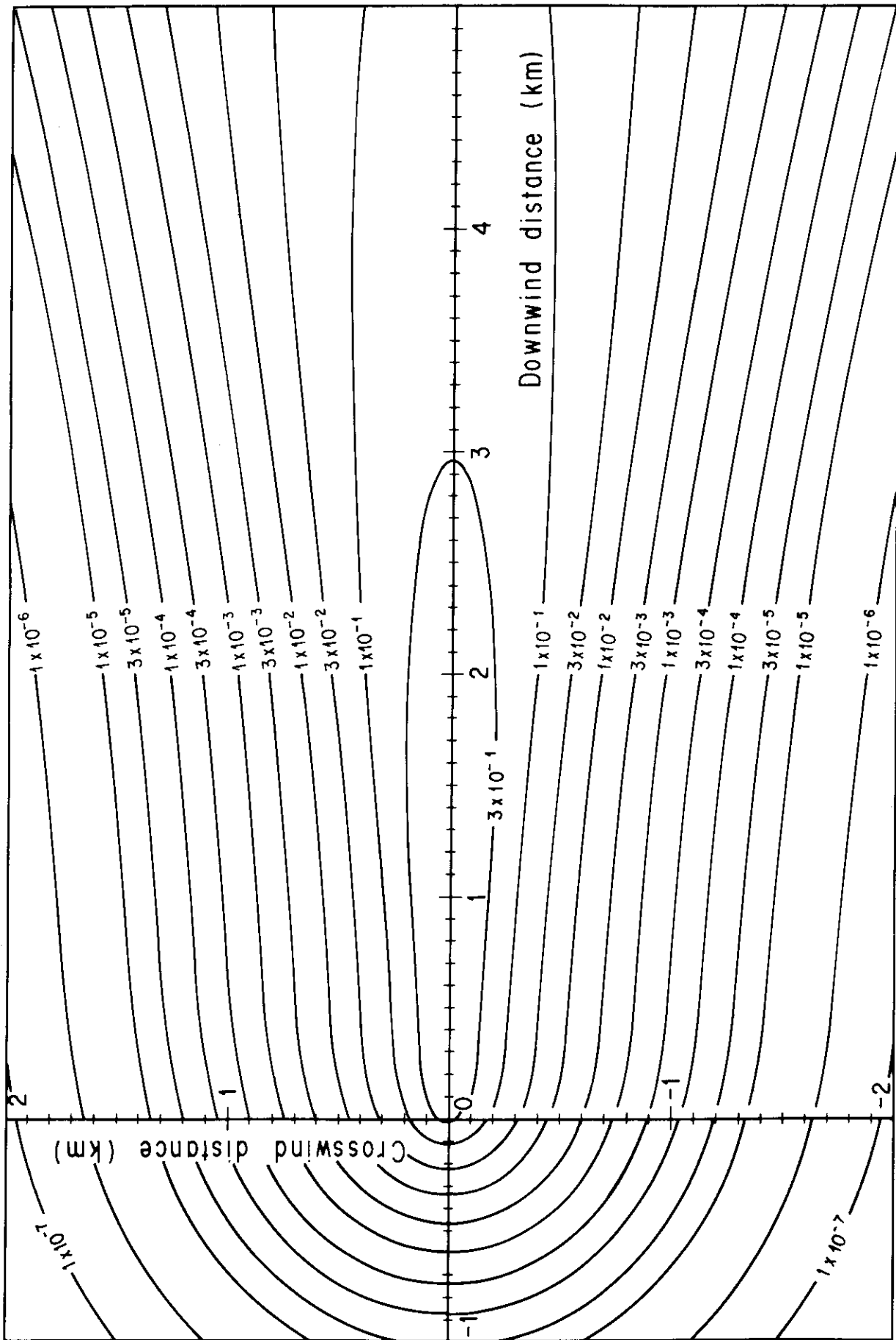


scale : 1 / 50000

Q : 1 GBq/h Stack height : 100 m
 EE : 1 MeV/dis Stability : B
 U : 1 m/s

Fig.4-9-2 (B) Isopleths of surface air absorbed dose rate

unit : nGy / h

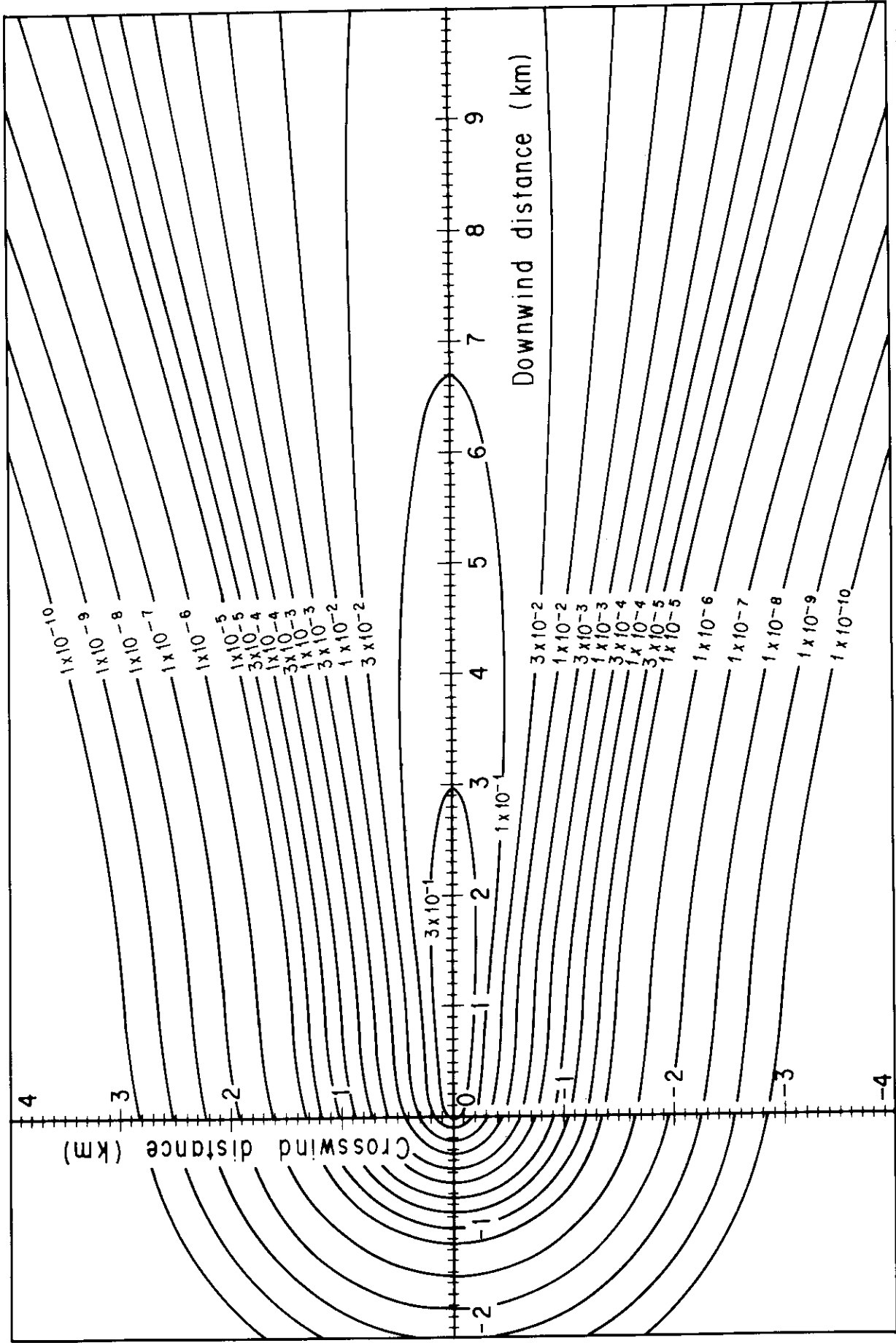


scale : 1 / 25000

Fig. 4-9-3 (A) Isopleths of surface air absorbed dose rate

Q : 1 GBq/h Stack height : 100 m
 E : 1 MeV/dis Stability : C
 U : 1 m/s

unit : nGy / h

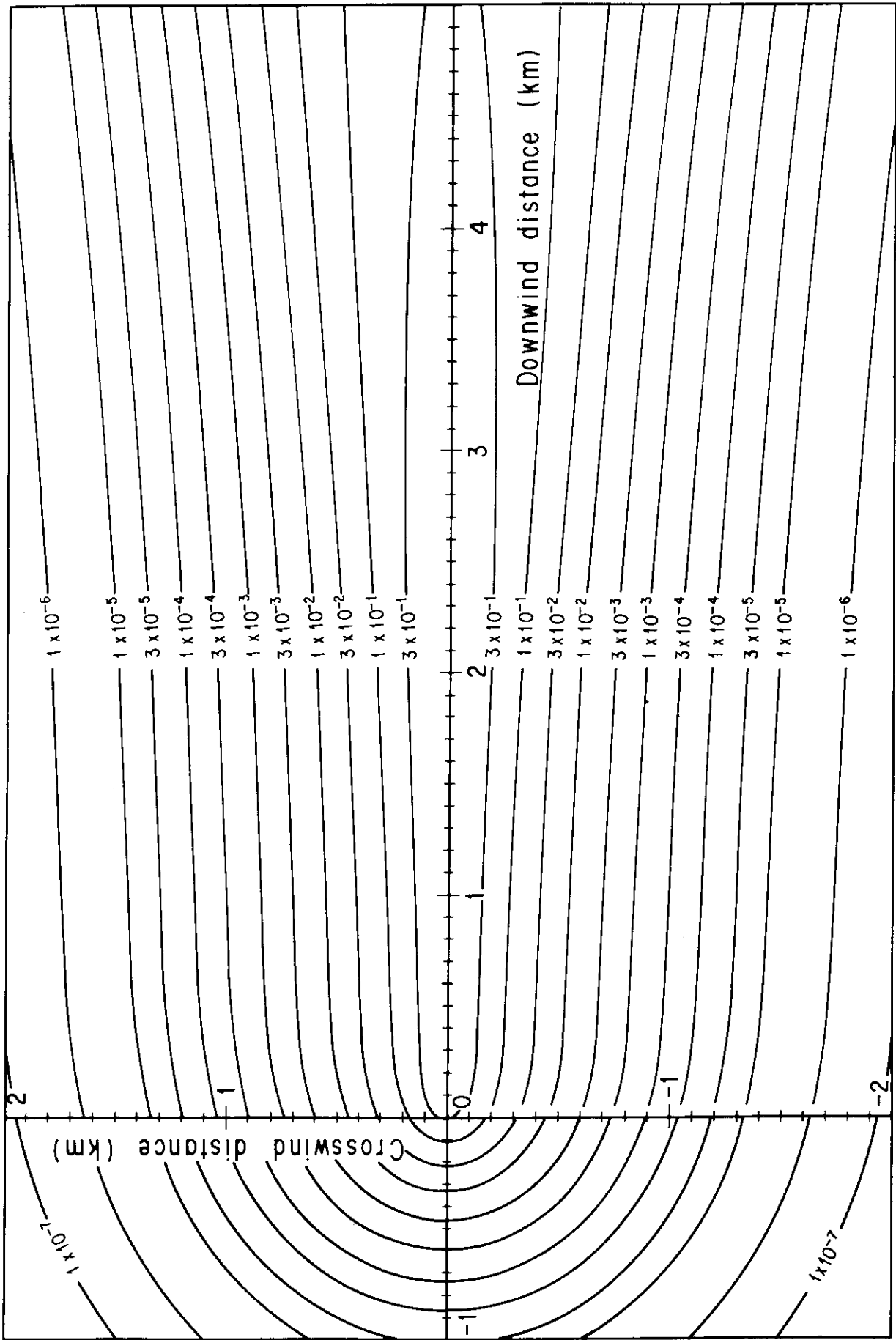


scale : 1/50000

Fig.4-9-3 (B) Isopleths of surface air absorbed dose rate

Q : 1 GBq/h Stack height : 100 m
 F : 1 MeV/dis Stability : C
 U : 1 m/s

unit : nGy / h

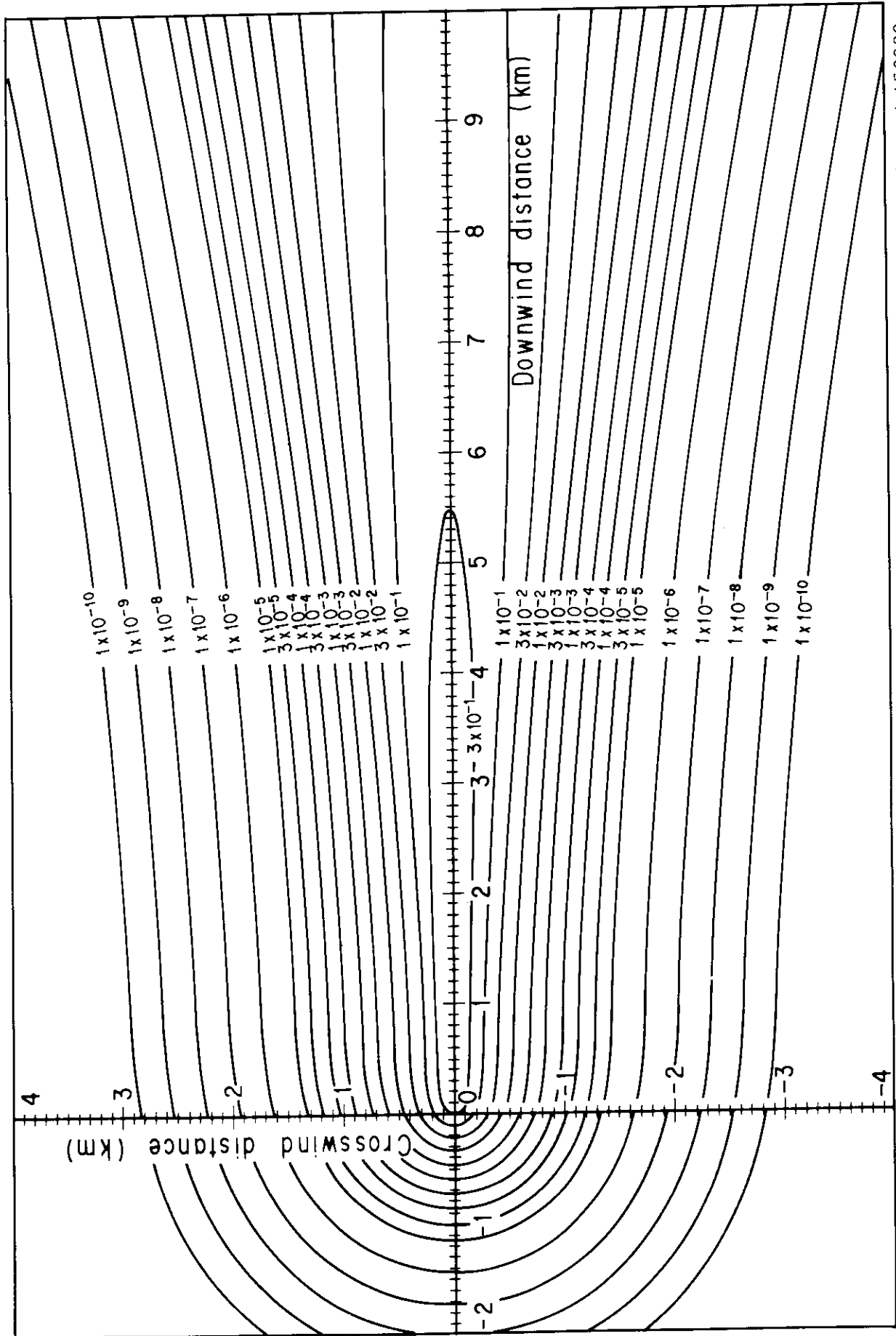


scale : 1/25000

Fig.4-9-4 (A) Isopleths of surface air absorbed dose rate

Q : 1 GBq/h Stack height : 100 m
 E : 1 MeV/dis Stability : D
 U : 1 m/s

unit : nGy / h

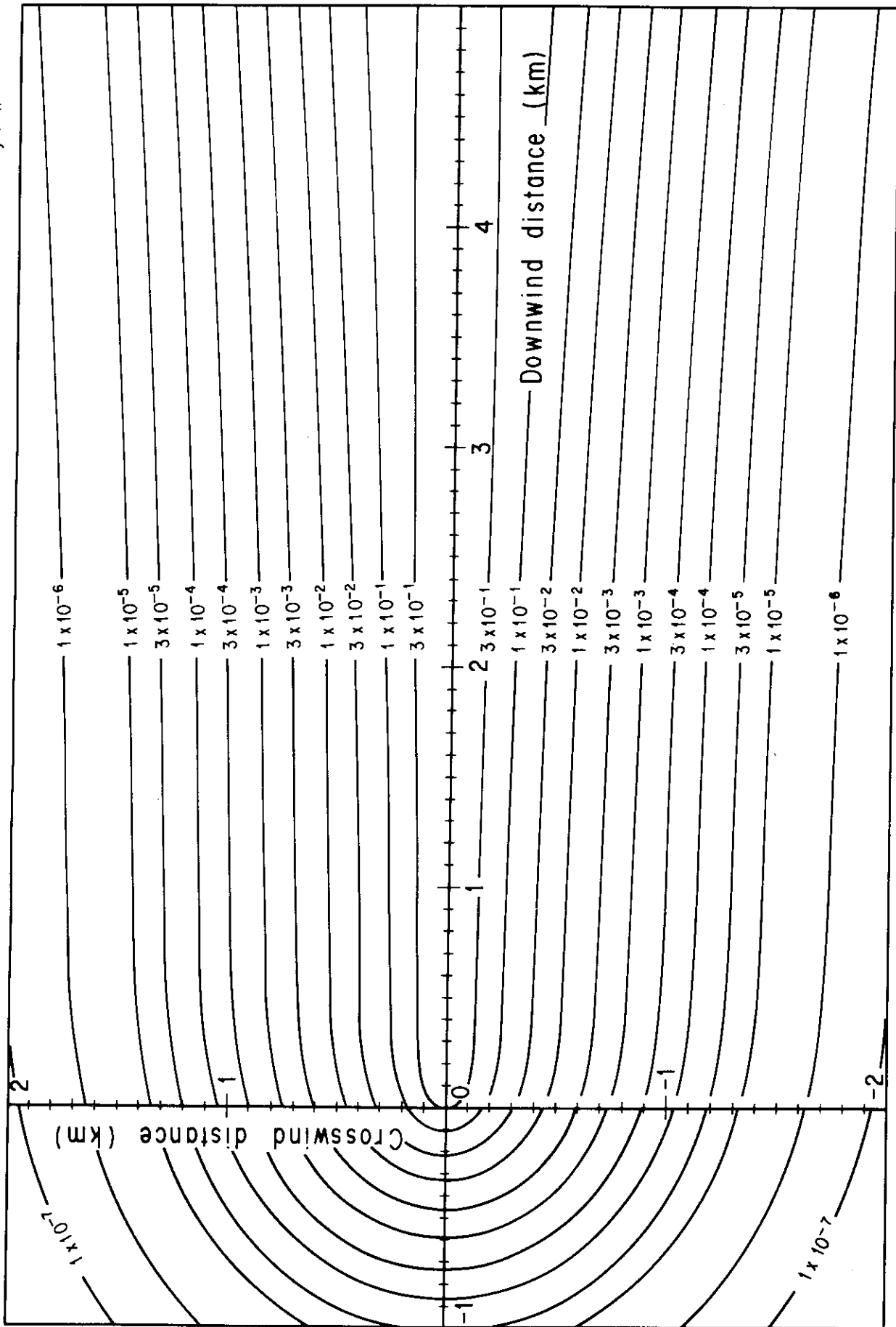


scale : 1 / 50000

Fig.4-9-4 (B) Isopleths of surface air absorbed dose rate

Q : 1 GBq/h Stack height : 100 m
E : 1 MeV/dis Stability : D
U : 1 m/s

unit : nGy / h

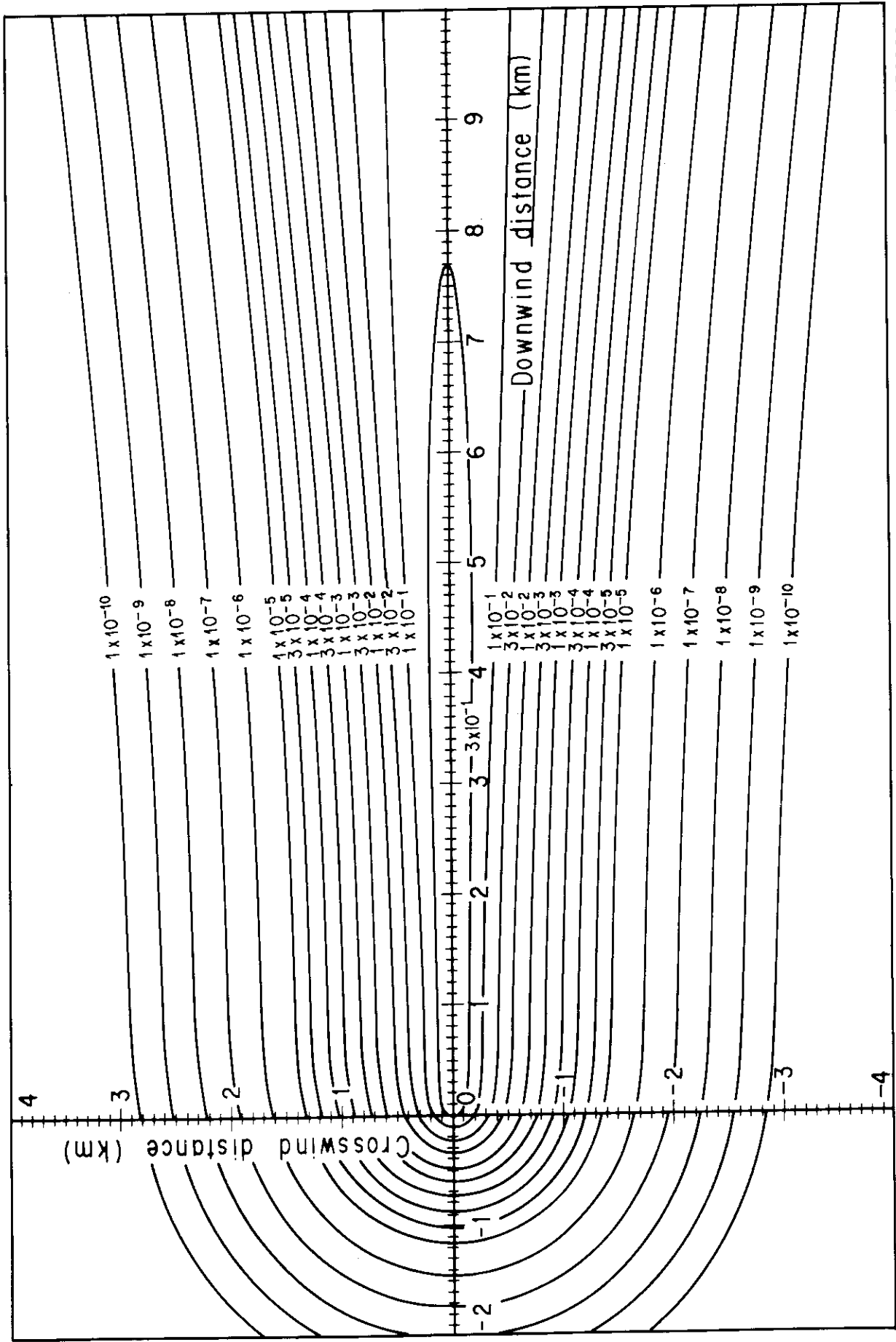


Q : 1 GBq/h Stack height : 100m
 E : 1 MeV/dis Stability : E
 U : 1 m/s

scale : 1/25000

Fig.4-9-5 (A) Isopleths of surface air absorbed dose rate

unit : nGy / h

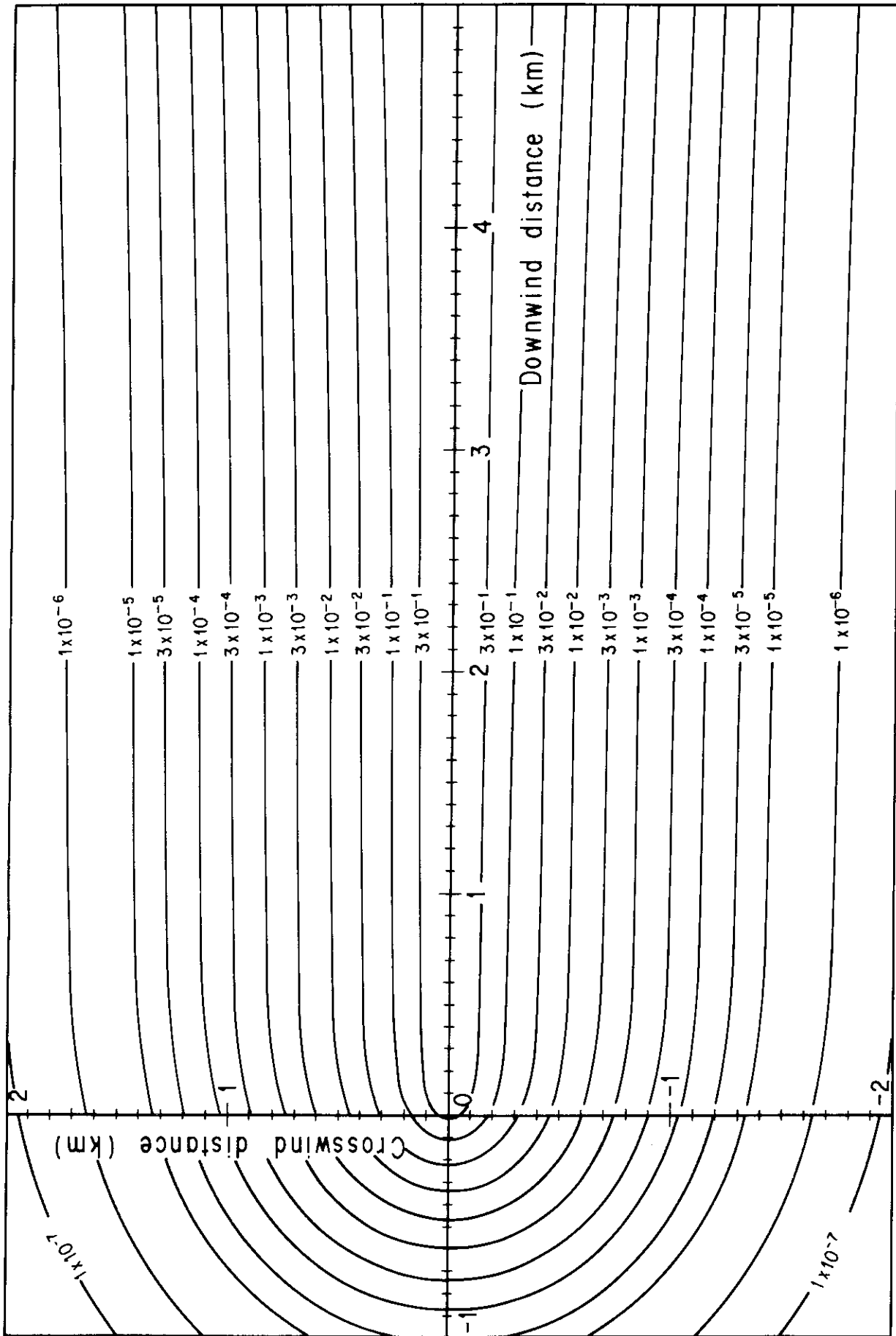


scale : 1 / 50000

Fig.4-9-5 (B) Isopleths of surface air absorbed dose rate

Q : 1 GBq/h Stack height : 100 m
 E : 1 MeV/dis Stability : E
 U : 1 m/s

unit : nGy / h

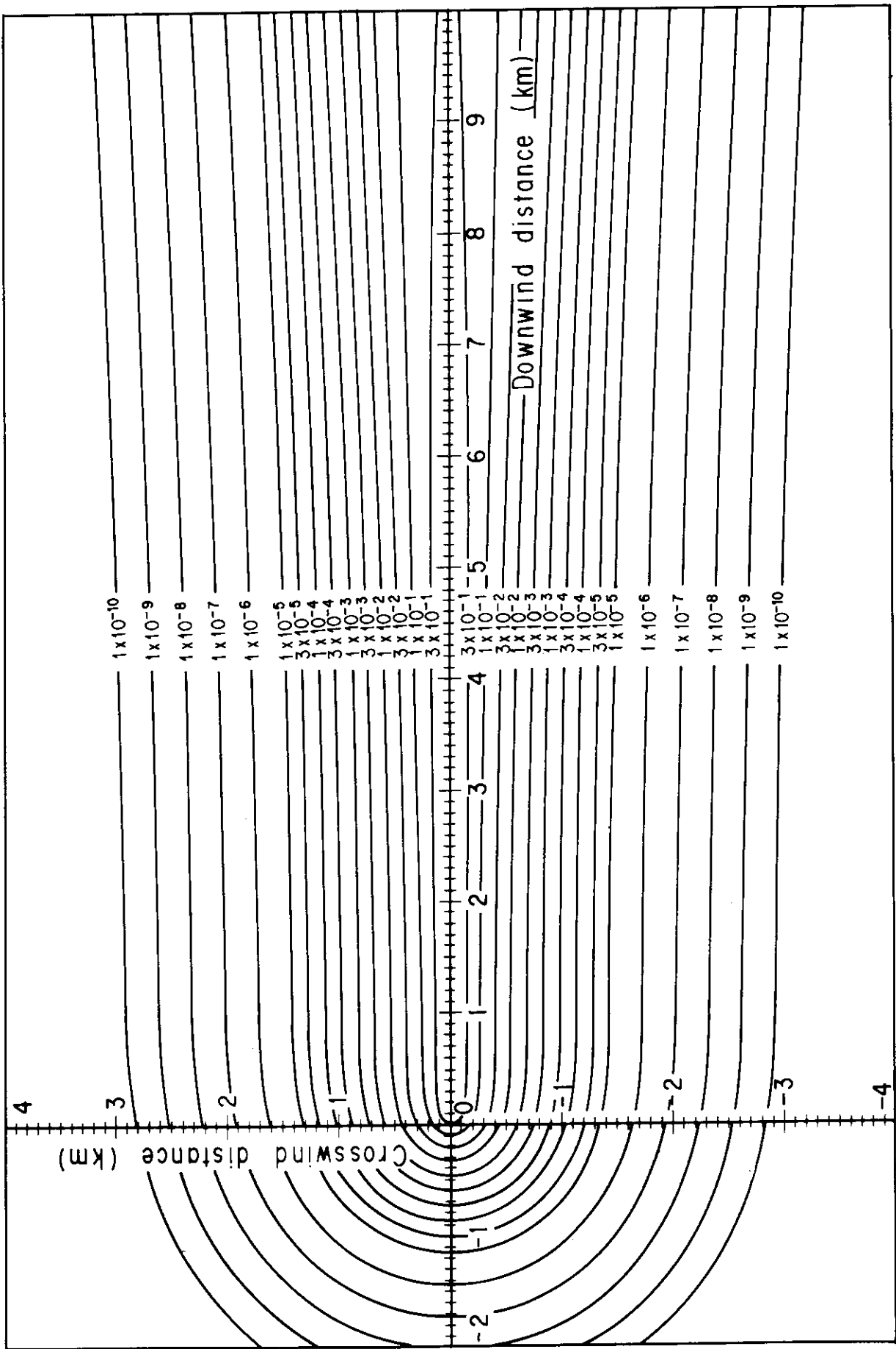


Q : 1 GBq/h Stack height : 100m
 E : 1 MeV/dis Stability : F
 U : 1 m/s

scale : 1 / 25000

Fig. 4-9-6 (A) Isopleths of surface air absorbed dose rate

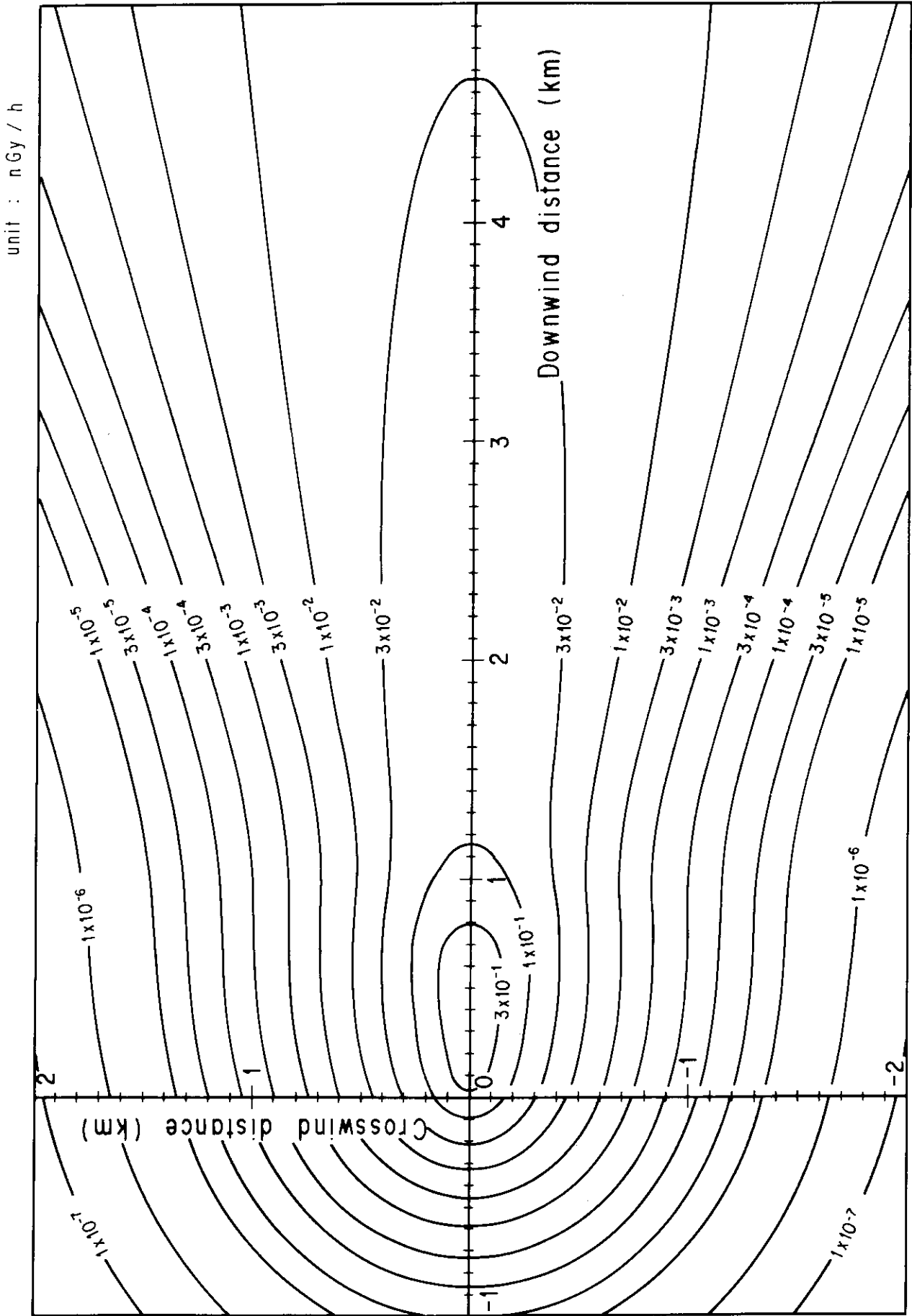
unit : nGy / h



scale : 1 / 50000

Fig.4-9-6 (B) Isopleths of surface air absorbed dose rate

Q : 1 Gbq/h Stack height : 100 m
 E : 1 MeV/dis Stability : F
 U : 1 m/s



scale : 1 / 25000

Fig.4-10-1 (A) Isopleths of surface air absorbed dose rate

Q : 1 GBq/h Stack height : 120m
 E : 1 MeV/dis Stability : A
 U : 1 m/s

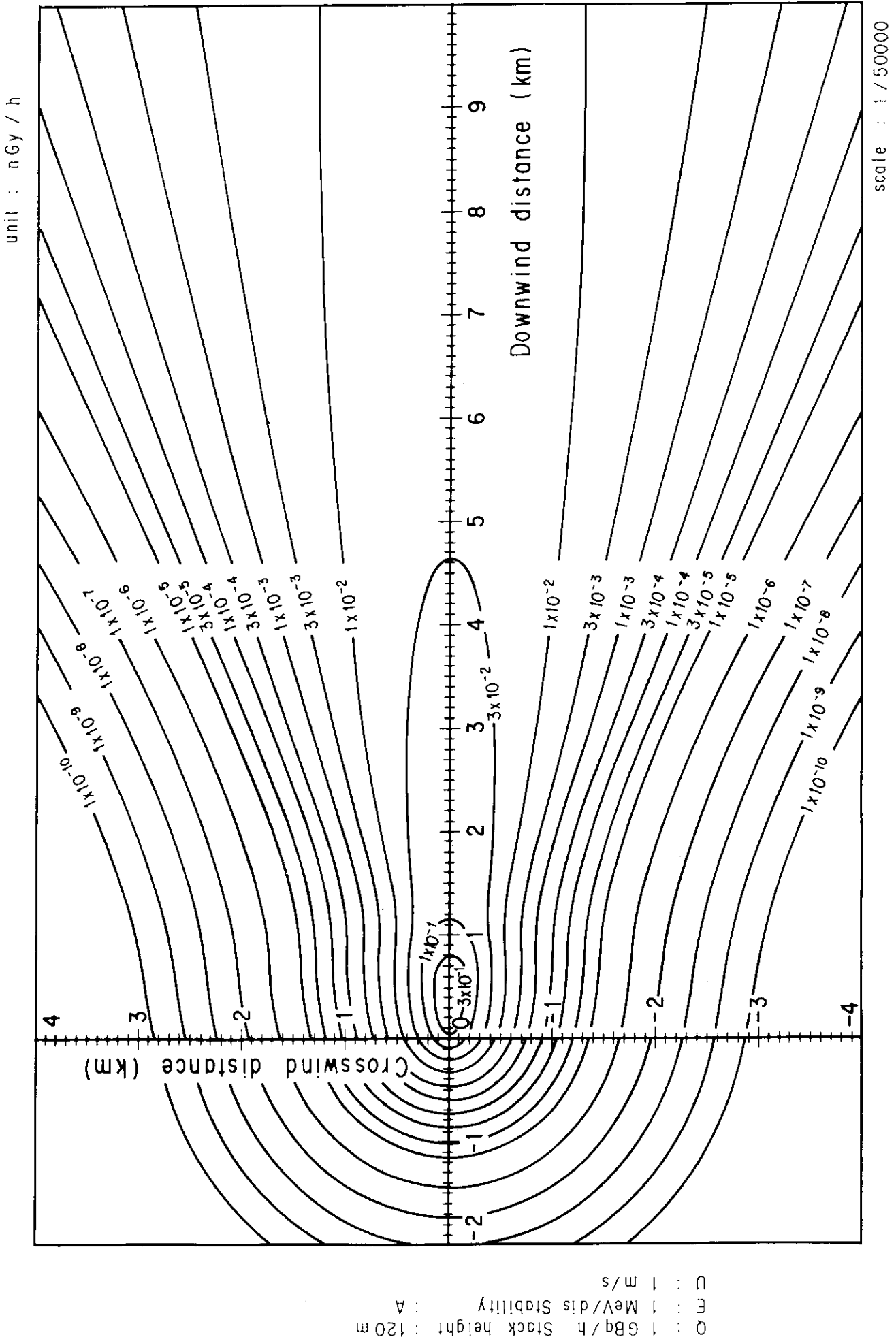
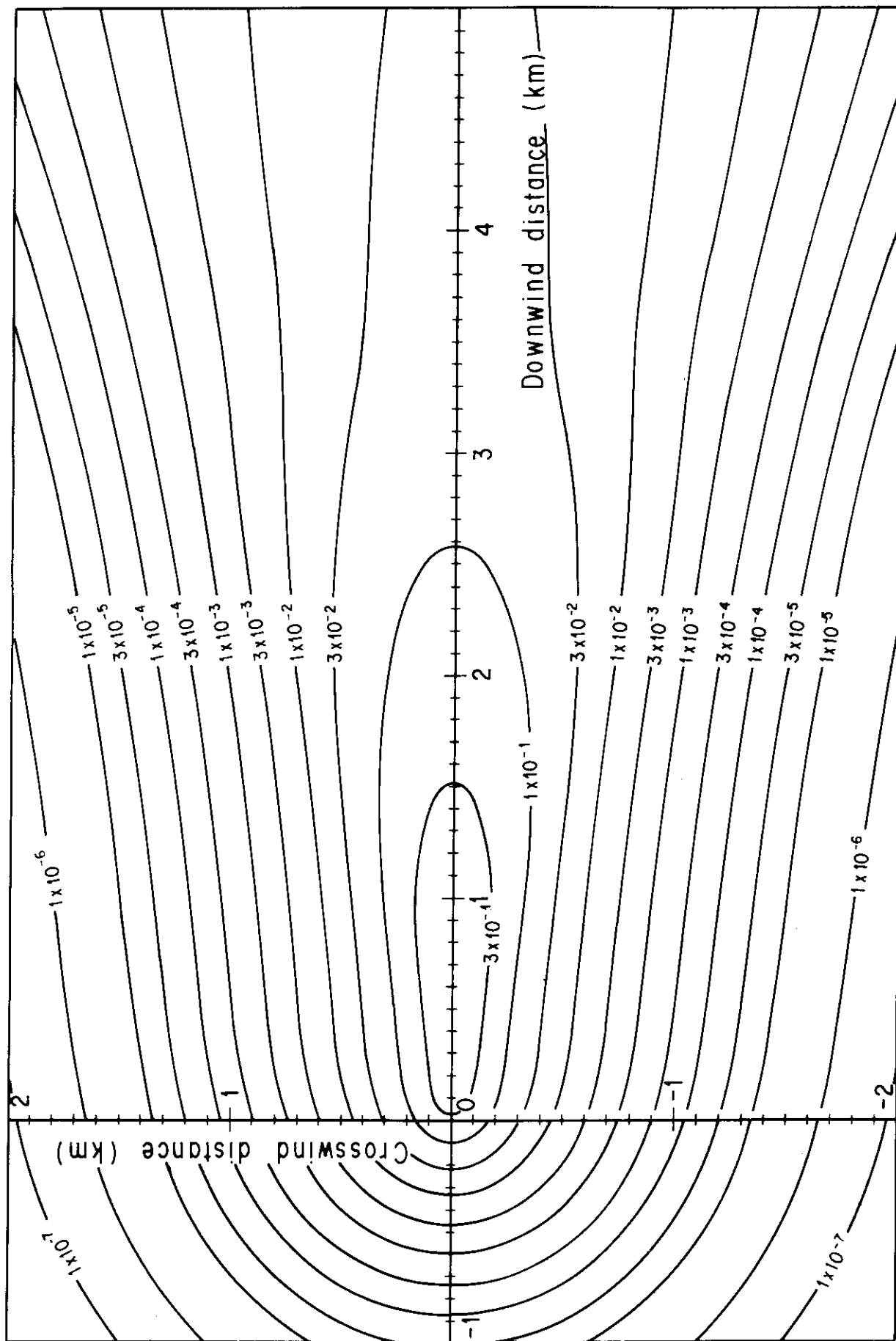


Fig.4-10-1 (B) Isopleths of surface air absorbed dose rate

unit : nGy / h



scale : 1 / 25000

Fig. 4-10-2 (A) Isopleths of surface air absorbed dose rate

Q : 1 GBq/h Stack height : 120 m
 E : 1 MeV/dis Stability : B
 U : 1 m/s

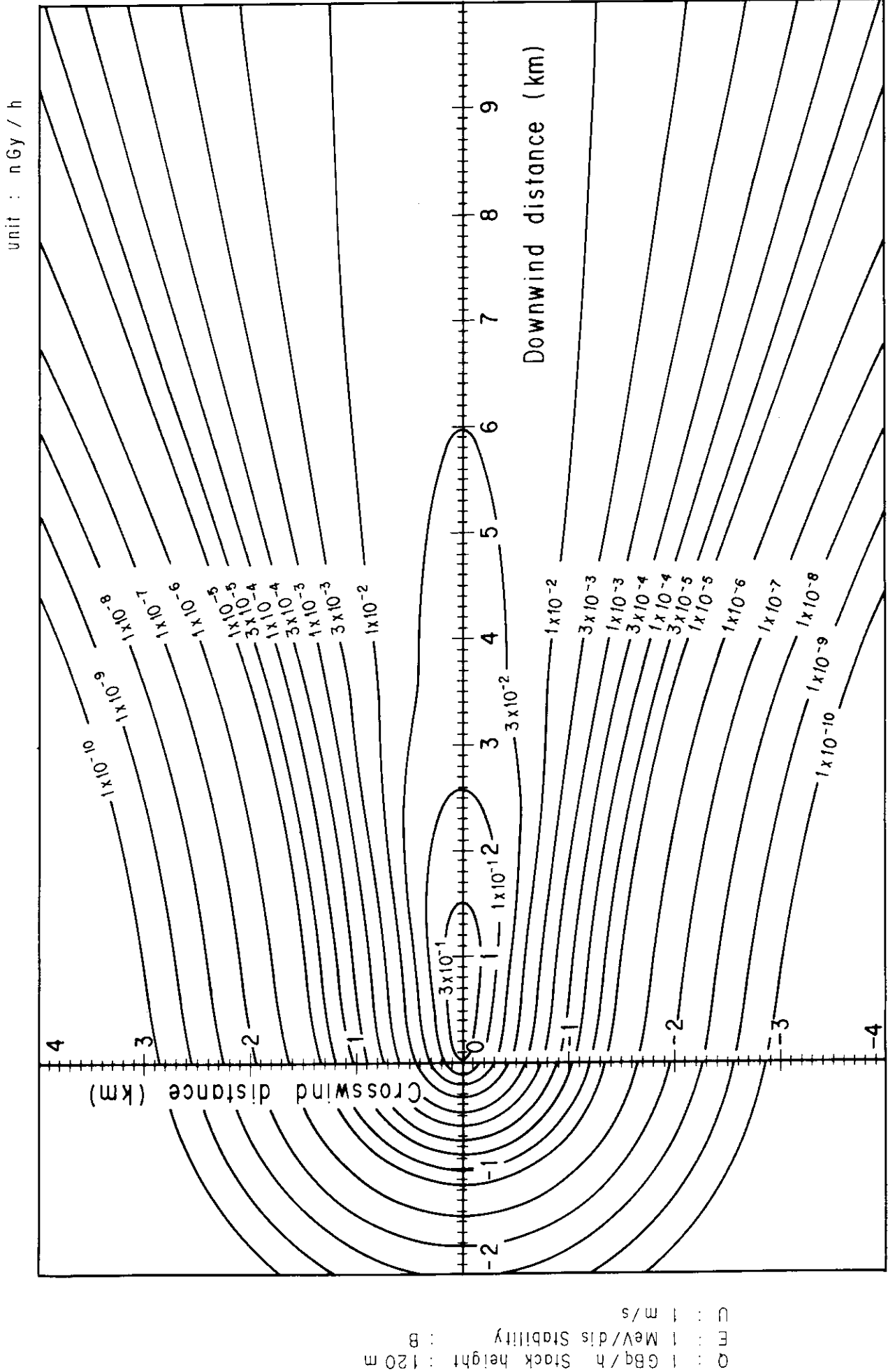
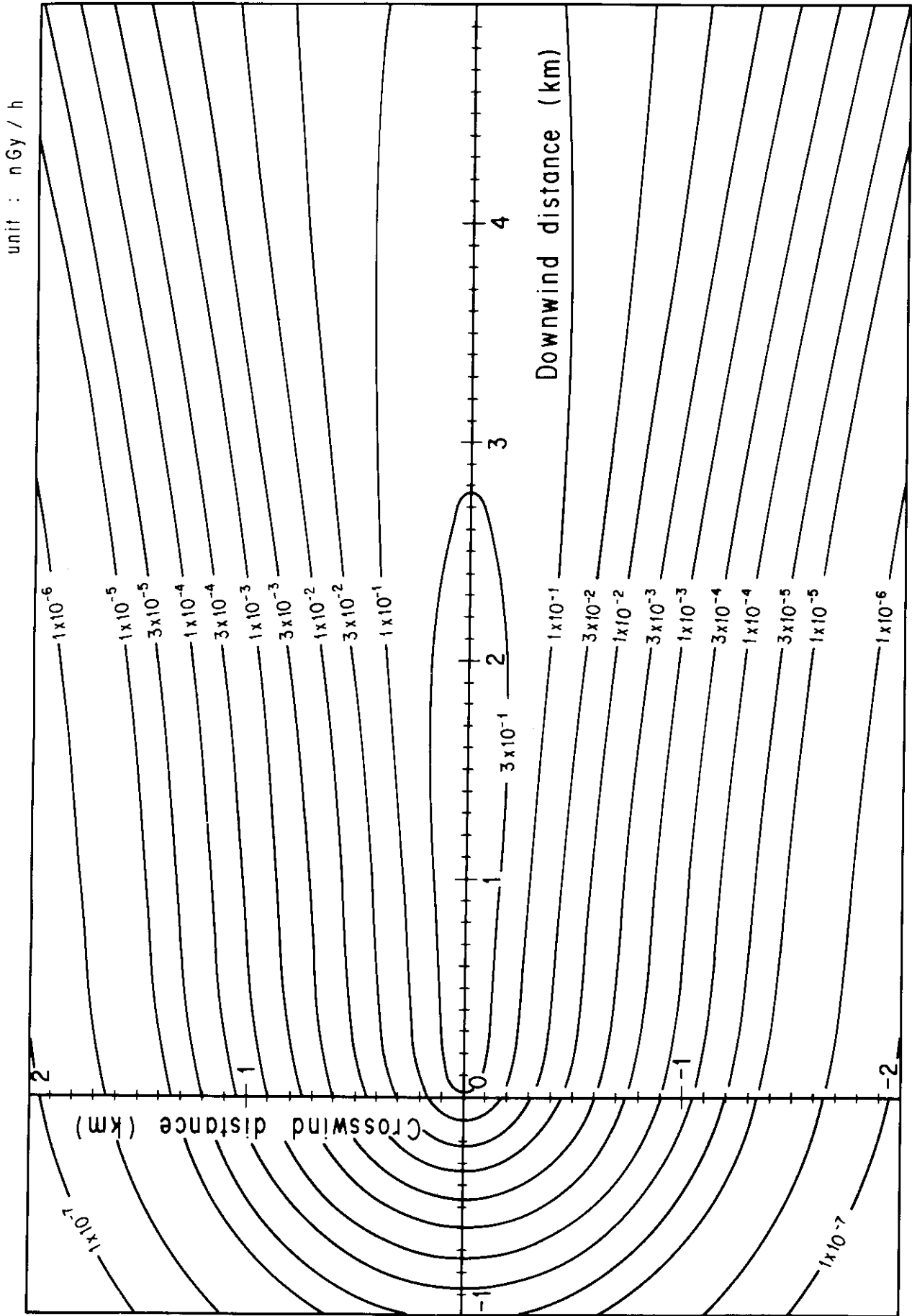


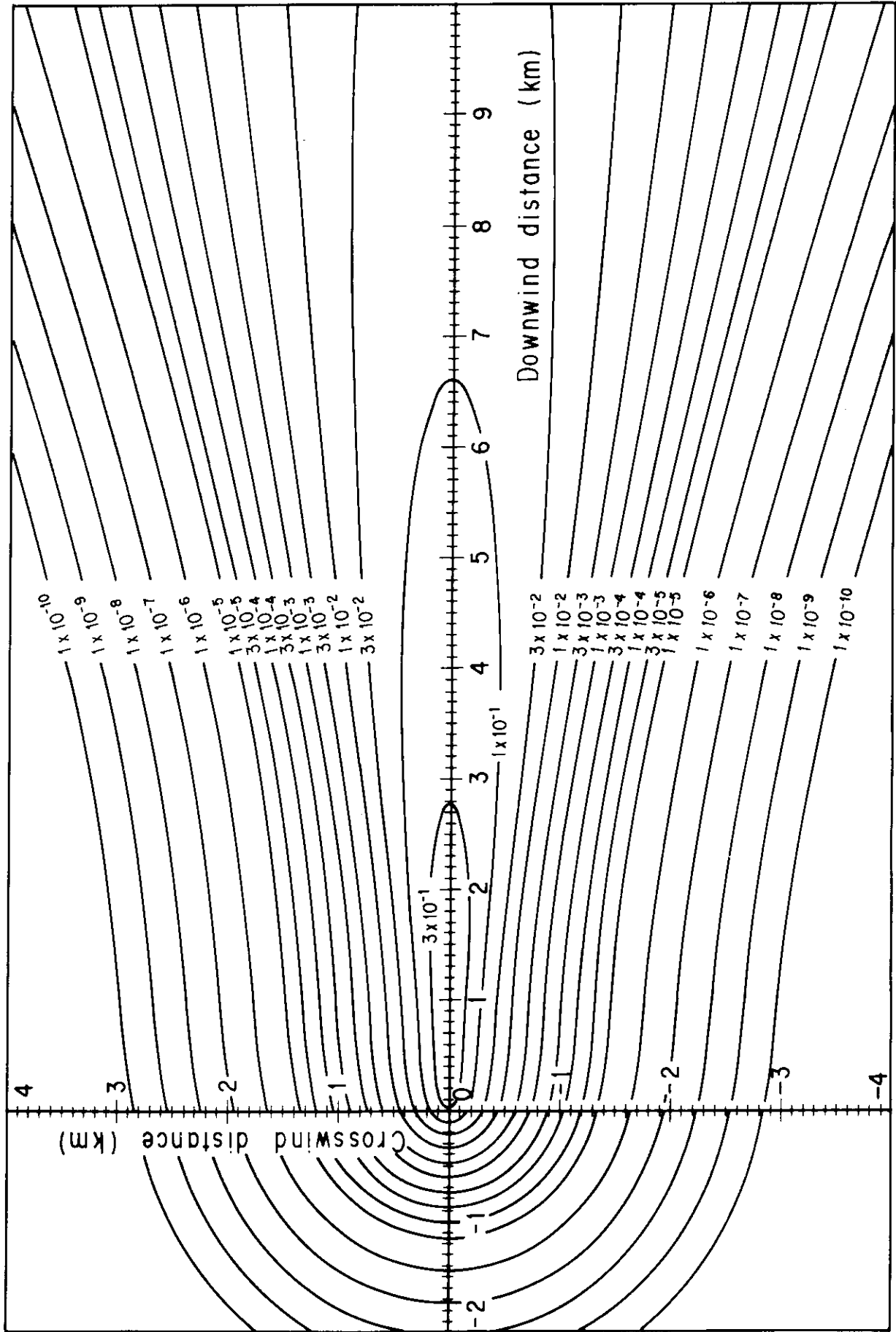
Fig.4-10-2 (B) Isopleths of surface air absorbed dose rate



scale : 1 / 25000

Fig. 4-10-3 (A) Isopleths of surface air absorbed dose rate

unit : nGy / h

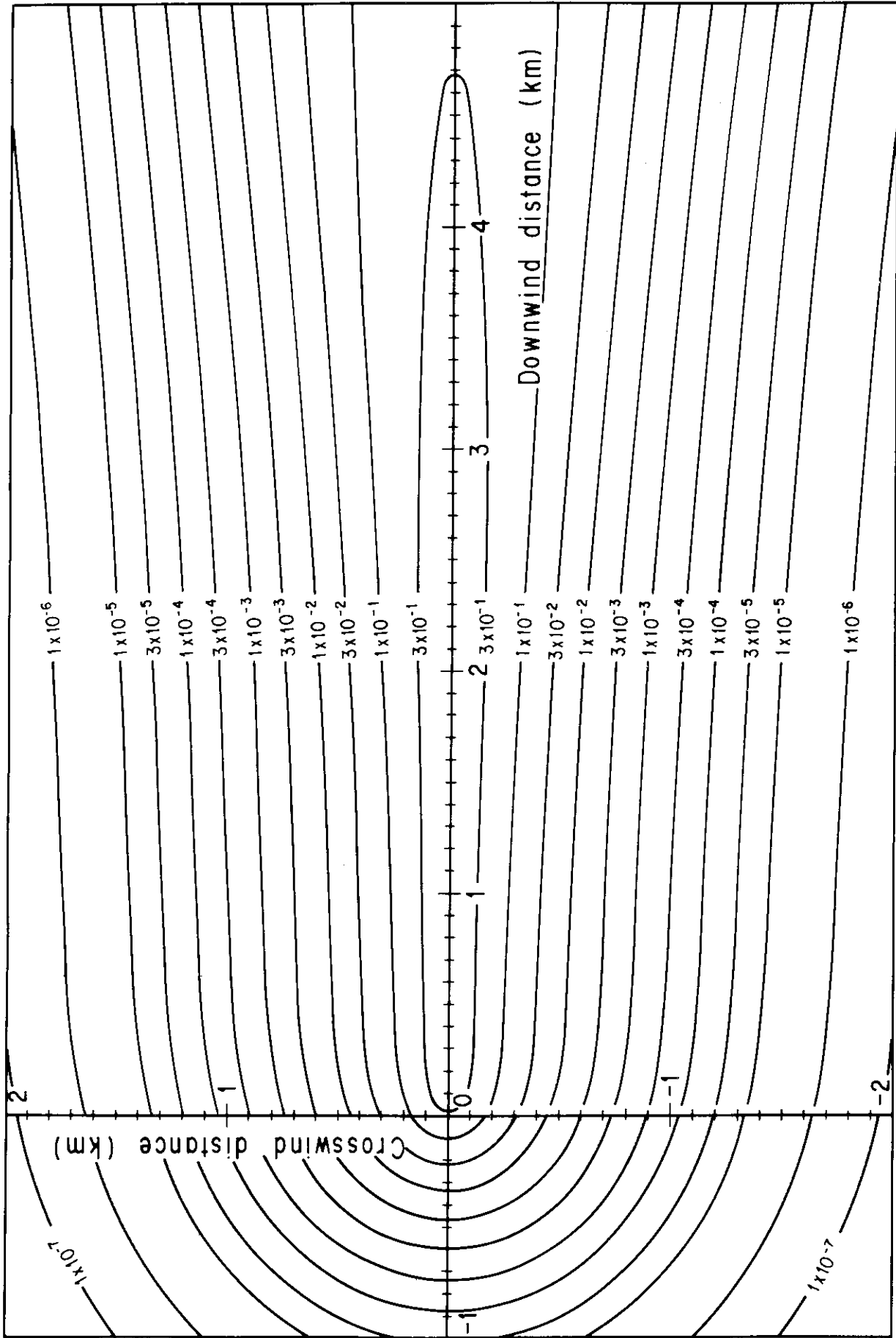


scale : 1/50000

Fig.4-10-3 (B) Isopleths of surface air absorbed dose rate

Q : 1 GBq/h Stack height : 120 m
 E : 1 MeV/dis Stability : C
 U : 1 m/s

unit : nGy / h

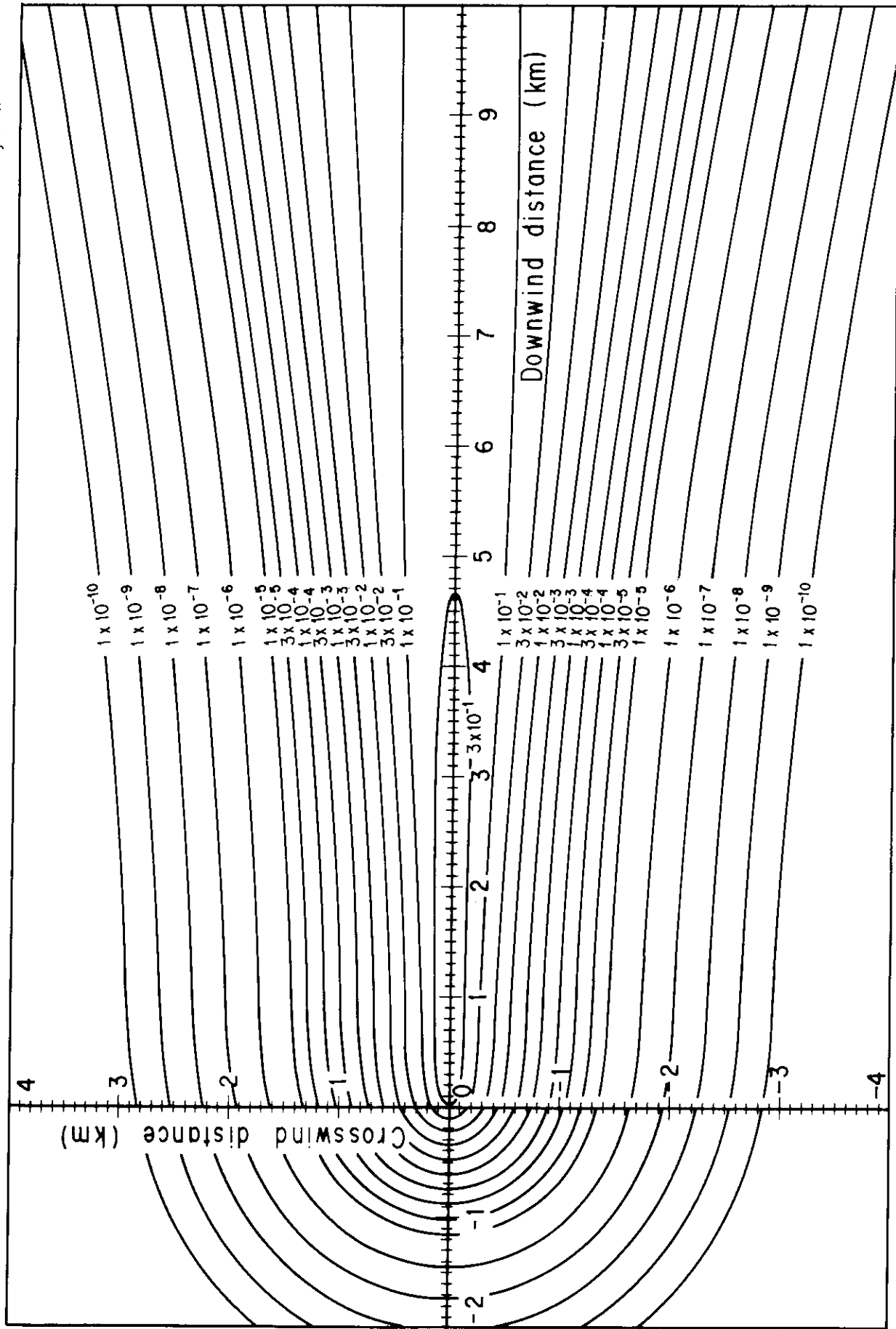


scale : 1 / 25000

Fig. 4-10-4 (A) Isopleths of surface air absorbed dose rate

Q : 1 GBq/h Stack height : 120m
E : 1 MeV/dis Stability : D
U : 1 m/s

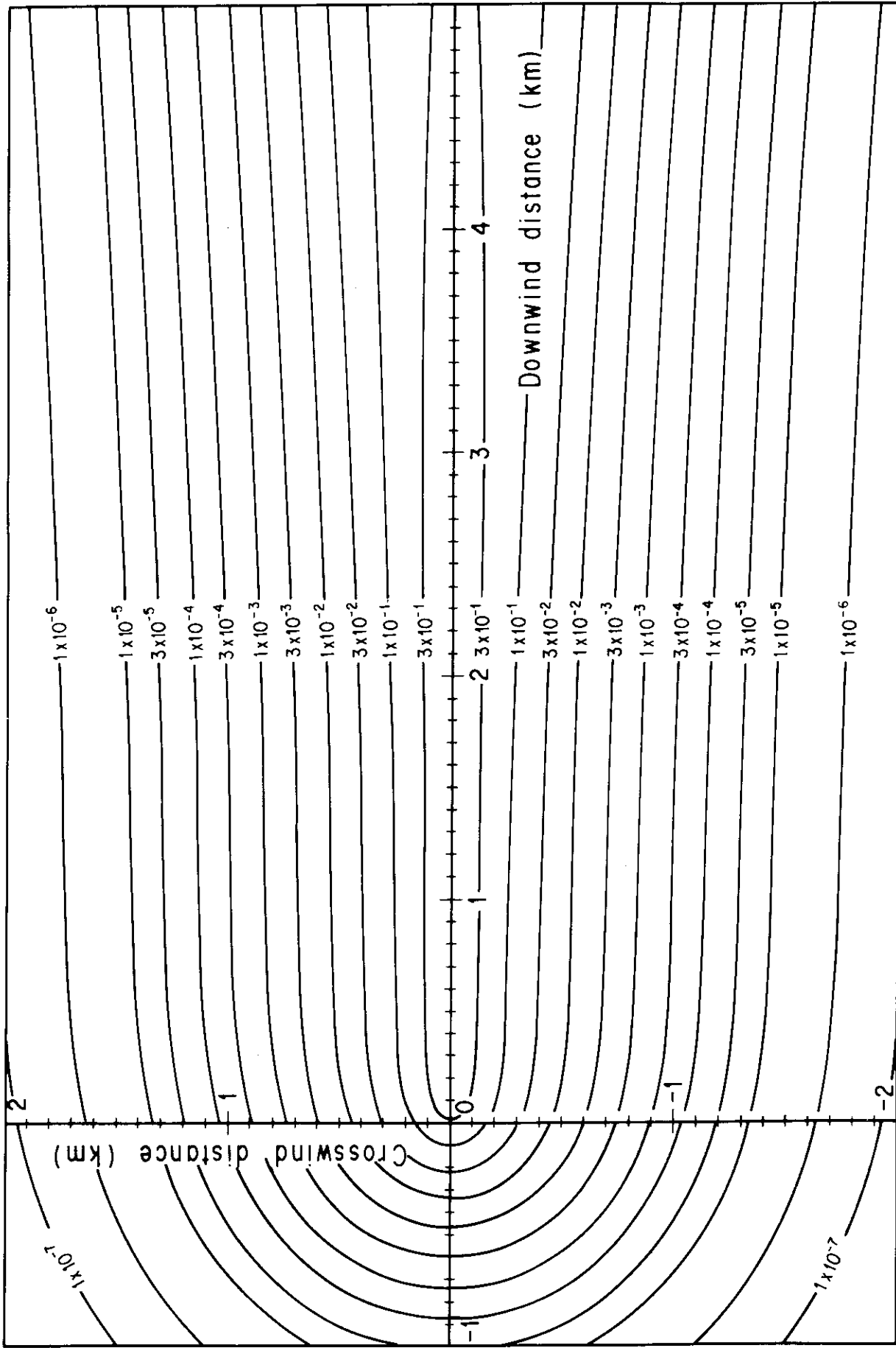
unit : nGy / h



scale : 1/50000

Fig.4-10-4 (B) Isopleths of surface air absorbed dose rate

unit : nGy / h

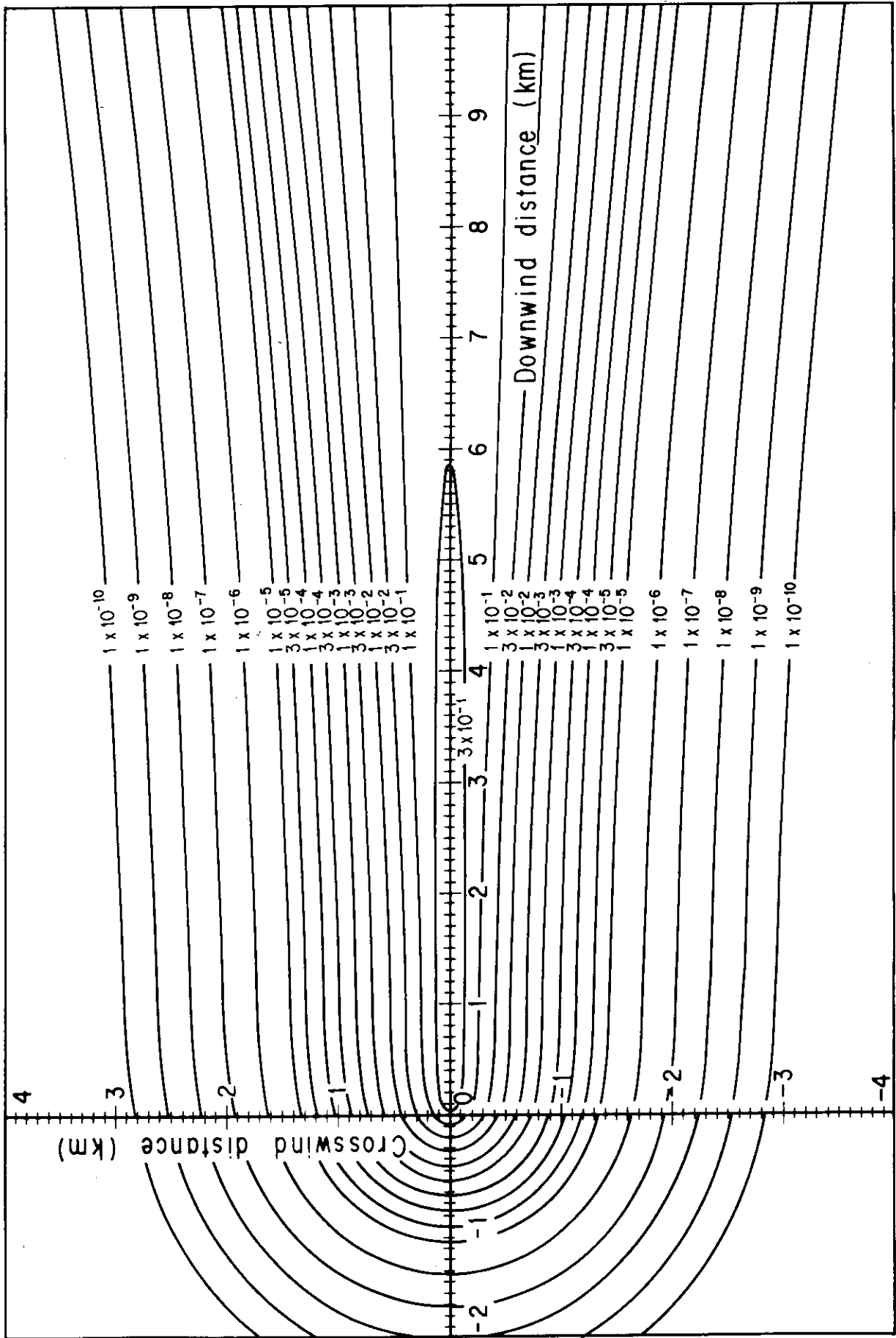


Q : 1 GBq/h Stack height : 120 m
 E : 1 MeV/dis Stability : E
 U : 1 m/s

scale : 1 / 25000

Fig. 4-10-5 (A) Isopleths of surface air absorbed dose rate

unit : nGy / h

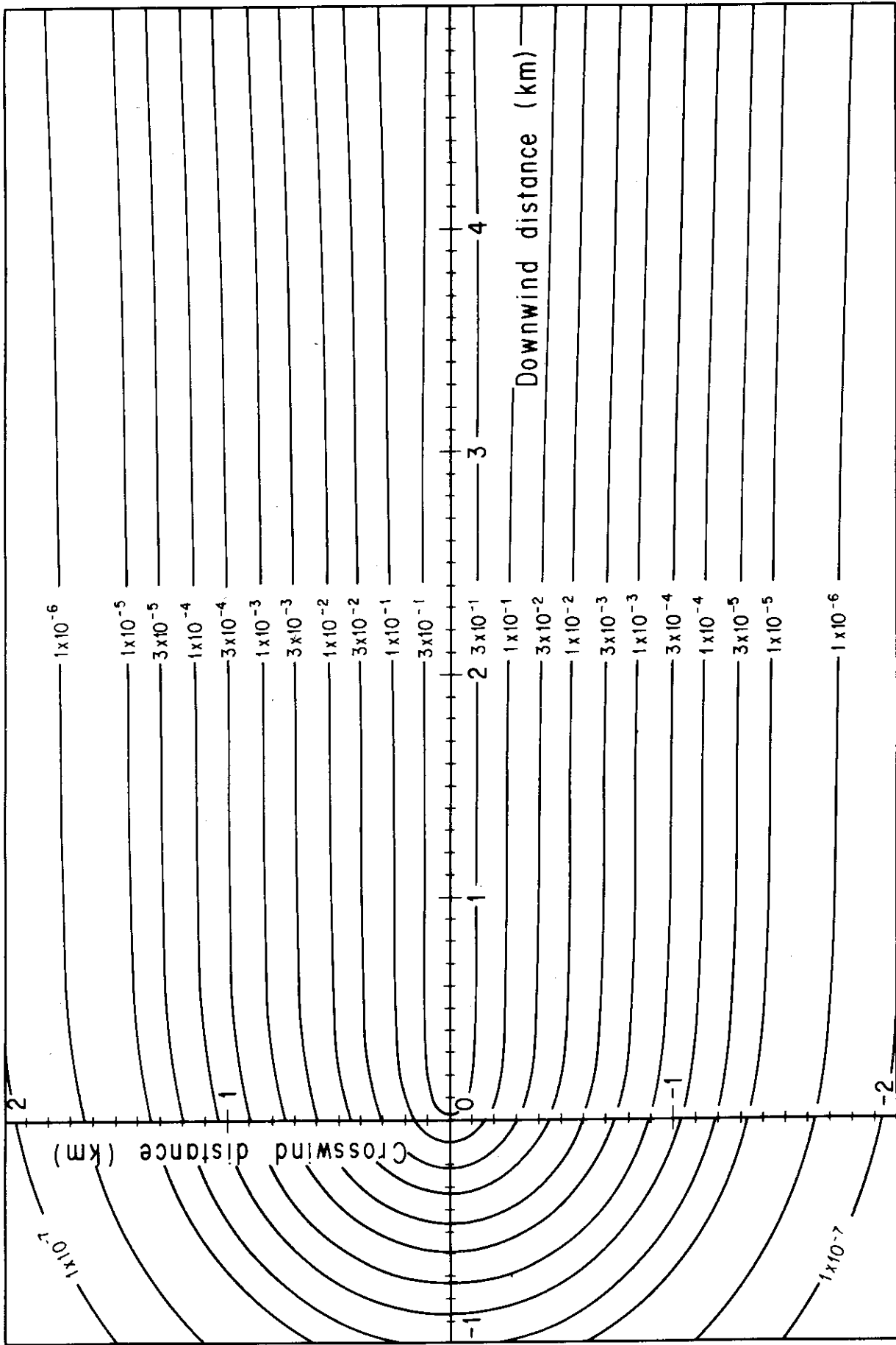


Q : 1 GBq/h Stack height : 120 m
 E : 1 MeV/dis Stability : E
 U : 1 m/s

scale : 1 / 50000

Fig.4-10-5 (B) Isopleths of surface air absorbed dose rate

unit : nGy / h

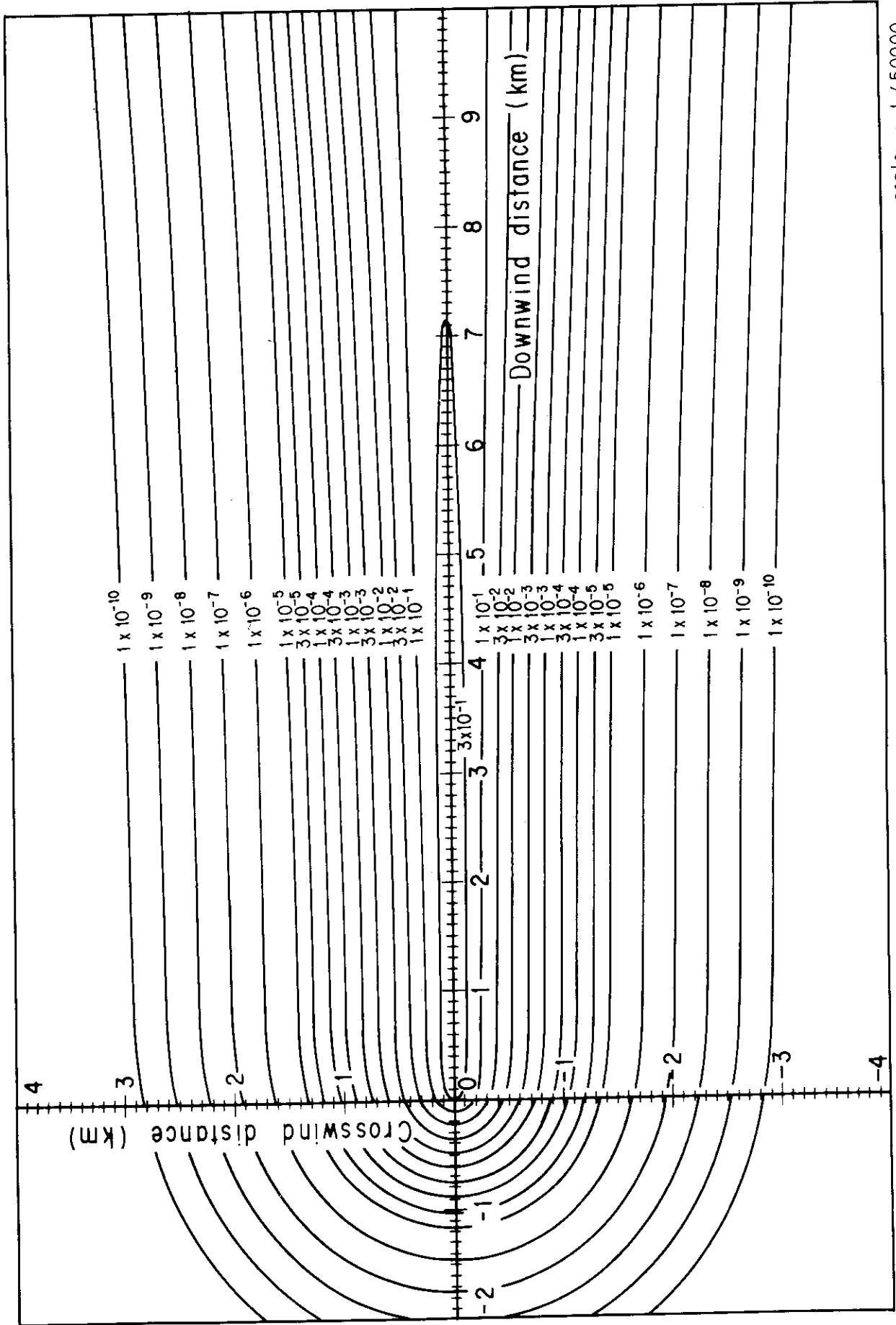


0 : 1 GBq/h Stack height : 120m
 E : 1 MeV/dis Stability : F
 U : 1 m/s

scale : 1 / 25000

Fig. 4-10-6 (A) Isopleths of surface air absorbed dose rate

unit : nGy / h

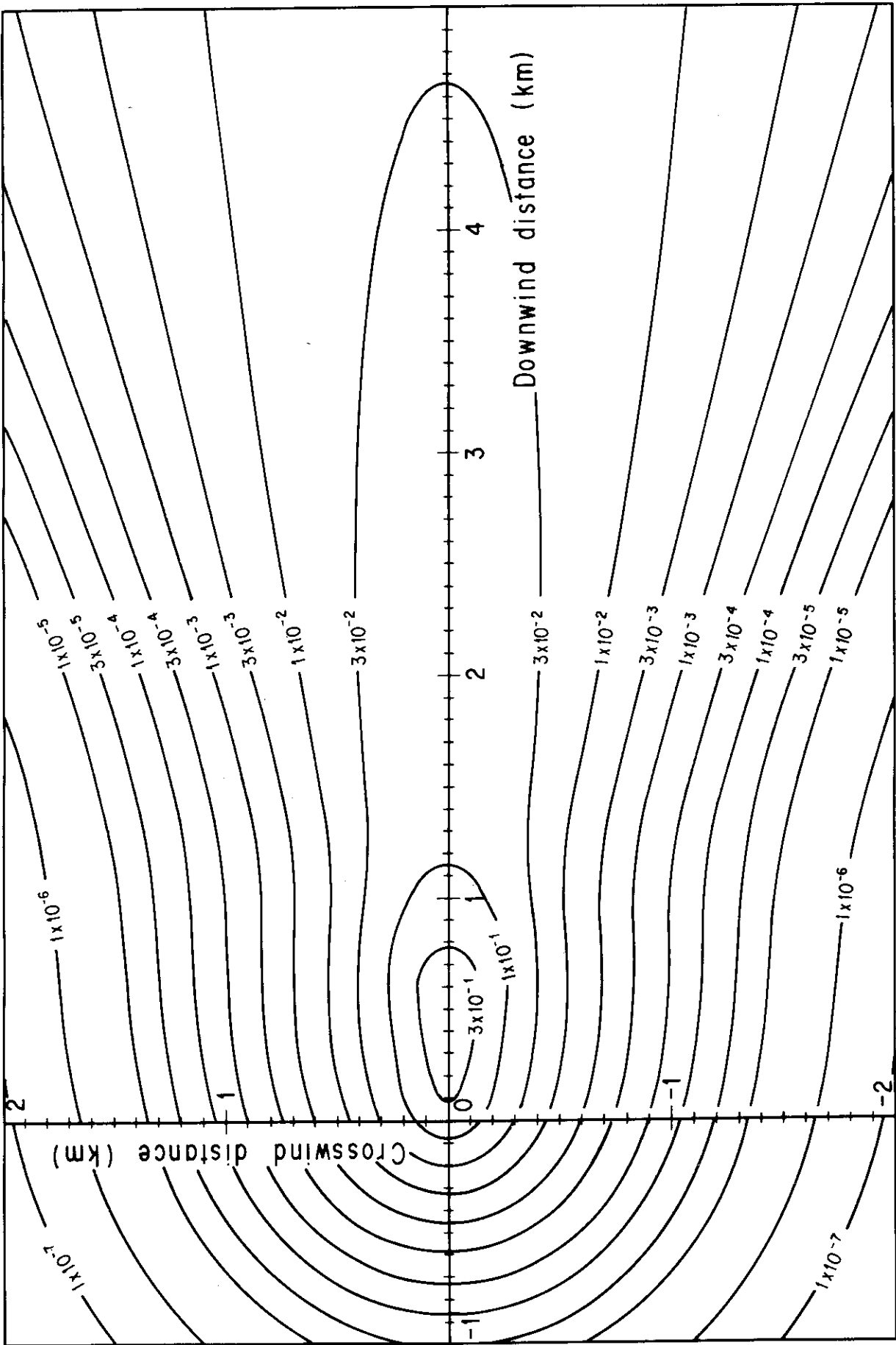


scale : 1 / 50000

Fig. 4-10-6 (B) Isopleths of surface air absorbed dose rate

Q : 1 GBq/h Stack height : 120 m
 F : 1 MeV/ds Stability
 U : 1 m/s

unit : nGy / h

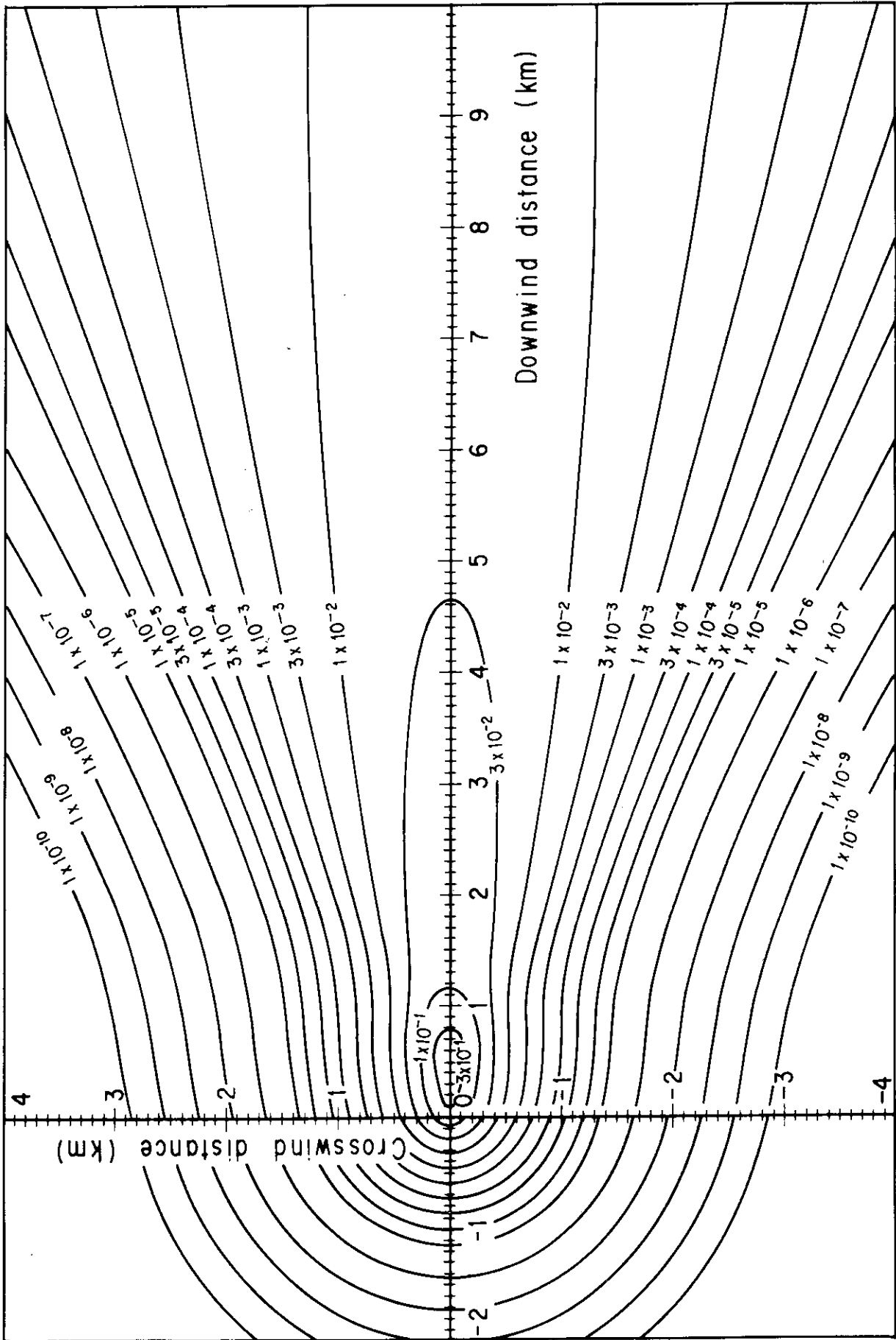


scale : 1 / 25000

Fig. 4-11-1 (A) Isopleths of surface air absorbed dose rate

Q : 1 GBq/h Stack height : 140m
 E : 1 MeV/dis Stability : A
 U : 1 m/s

unit : nGy / h

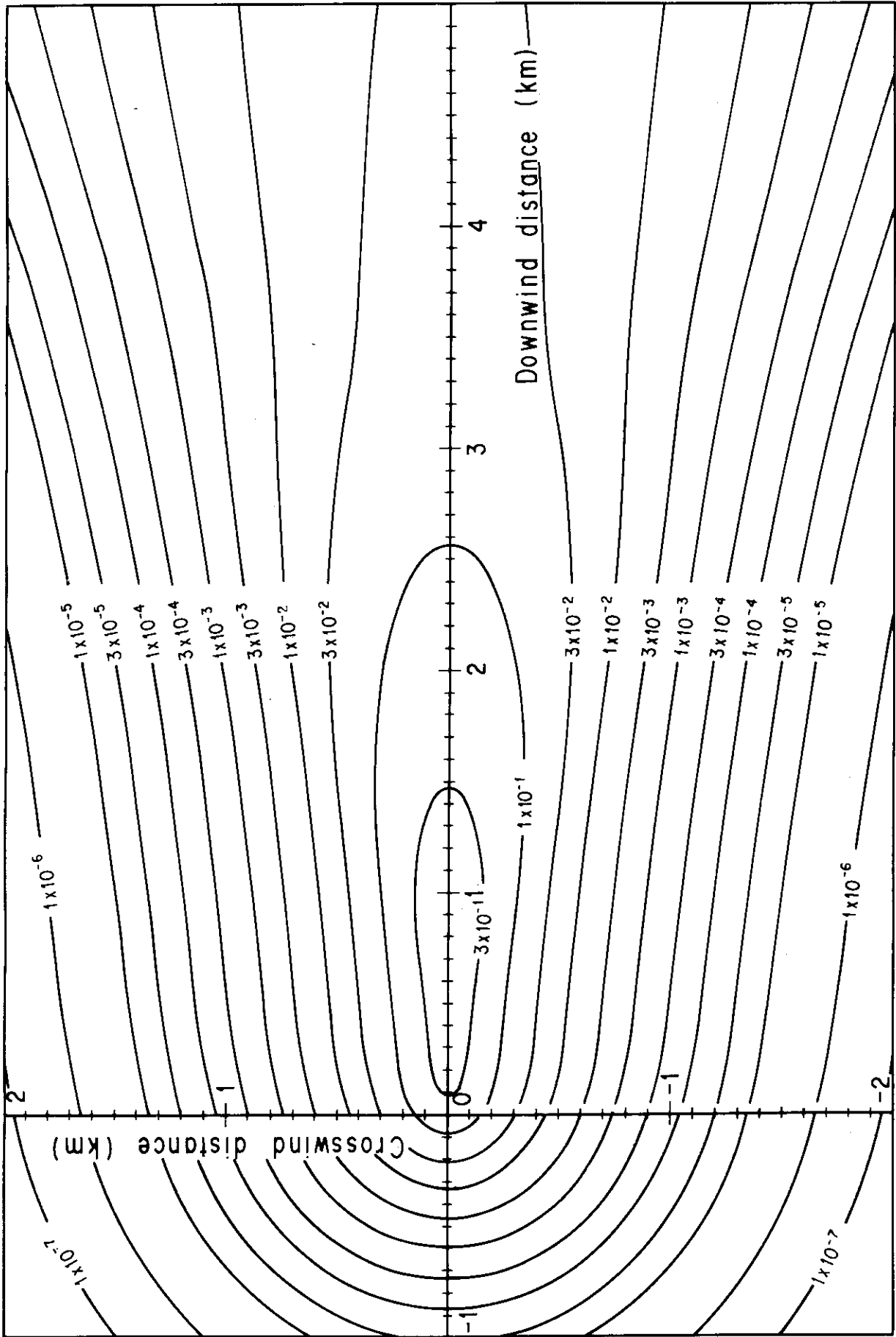


scale : 1 / 50000

Fig.4-11-1 (B) Isopleths of surface air absorbed dose rate

Q : 1 GBq/h Stack height : 140 m
 E : 1 MeV/dis Stability : A
 U : 1 m/s

unit : nGy / h

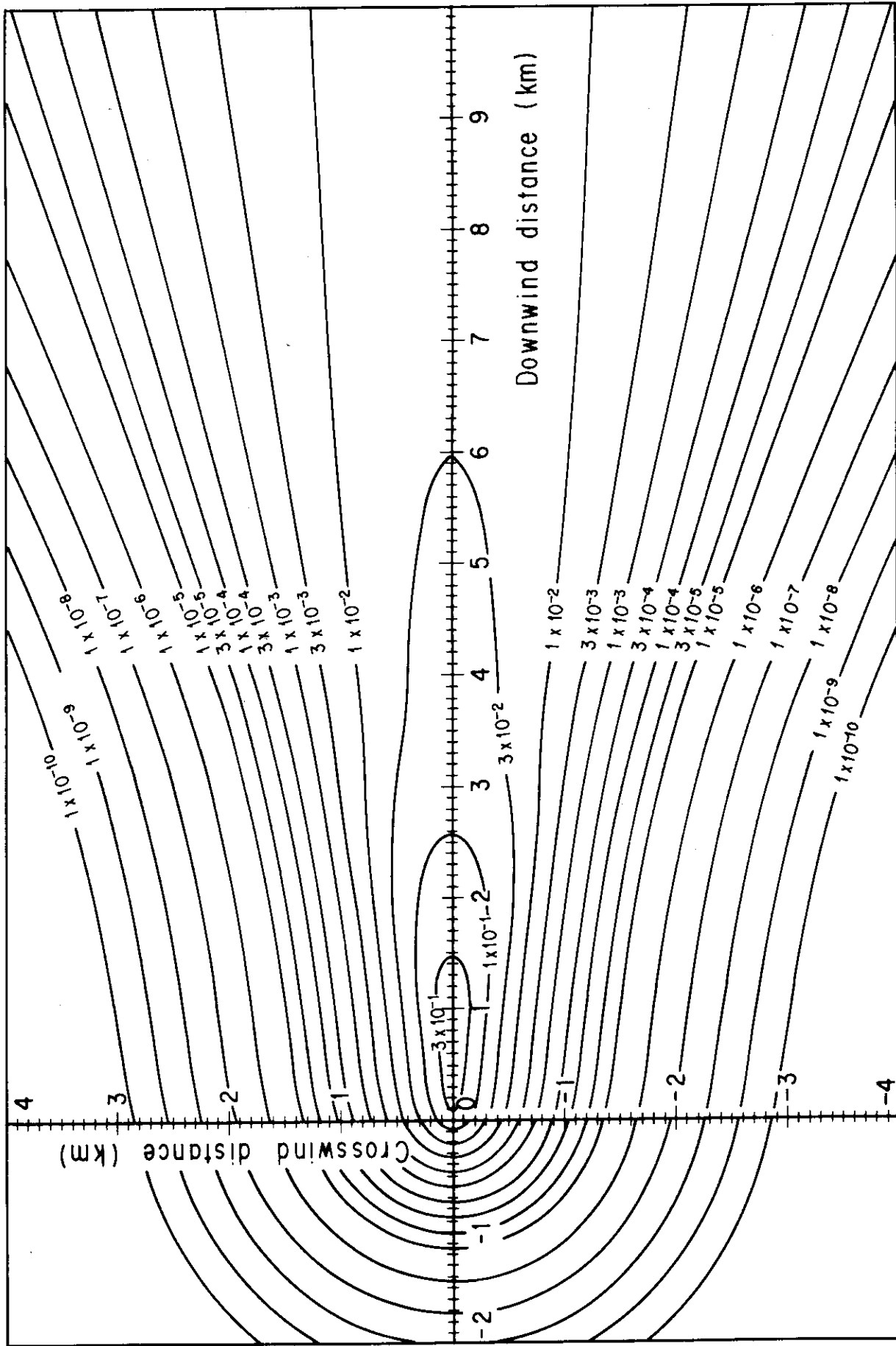


scale : 1 / 25000

Fig. 4-11-2 (A) Isopleths of surface air absorbed dose rate

Q : 1 GBq/h Stack height : 140m
 E : 1 MeV/dis Stability : B
 U : 1 m/s

unit : nGy / h

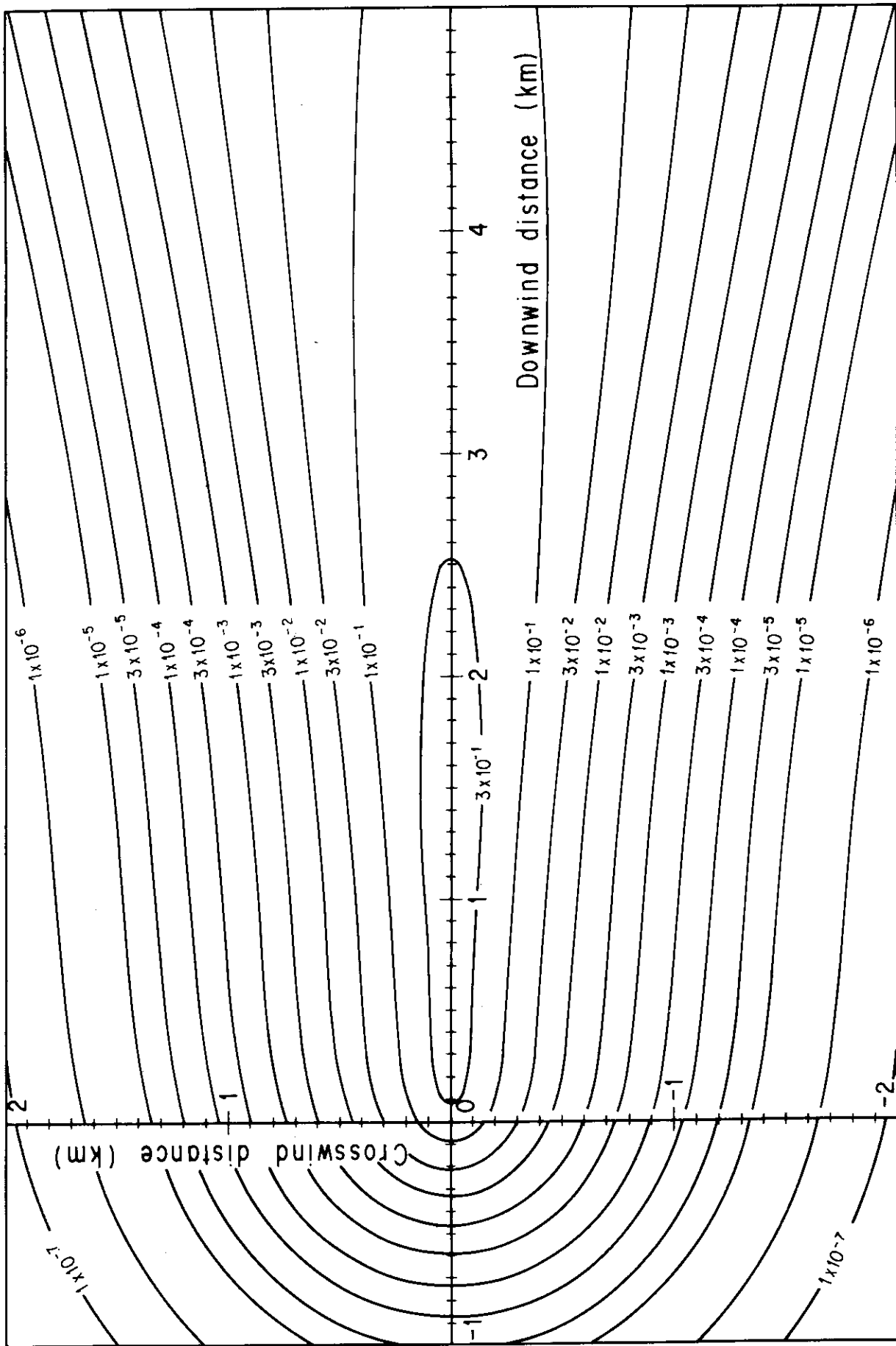


scale : 1 / 50000

Q : 1 GBq/h Stack height : 140 m
 E : 1 MeV/dis Stability : B
 U : 1 m/s

Fig.4-11-2 (B) Isopleths of surface air absorbed dose rate

unit : nGy / h

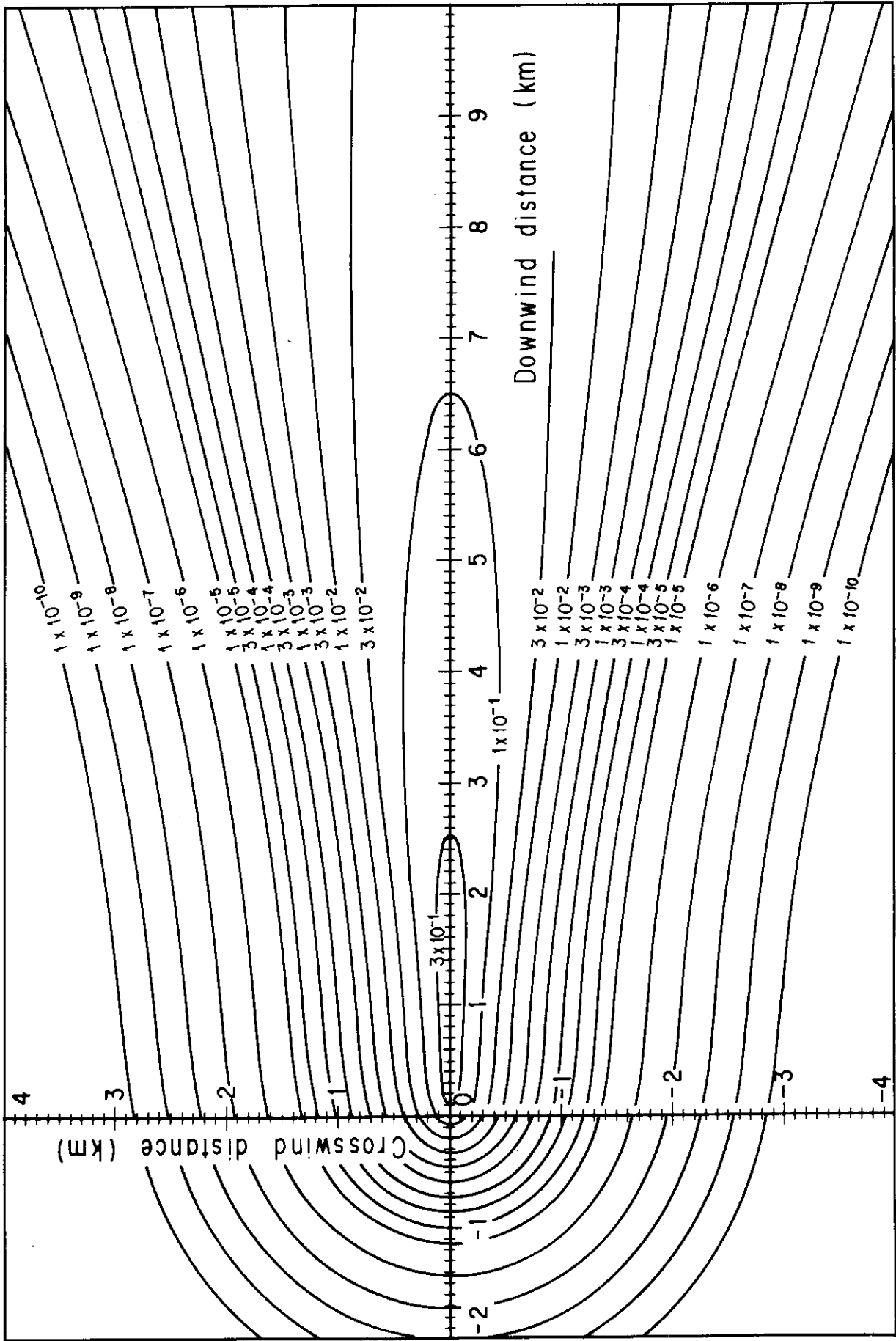


scale : 1 / 25000

Fig.4-11-3 (A) Isopleths of surface air absorbed dose rate

Q : 1 GBq/h Stack height : 140m
 E : 1 MeV/dis Stability : C
 U : 1 m/s

unit : nGy / h

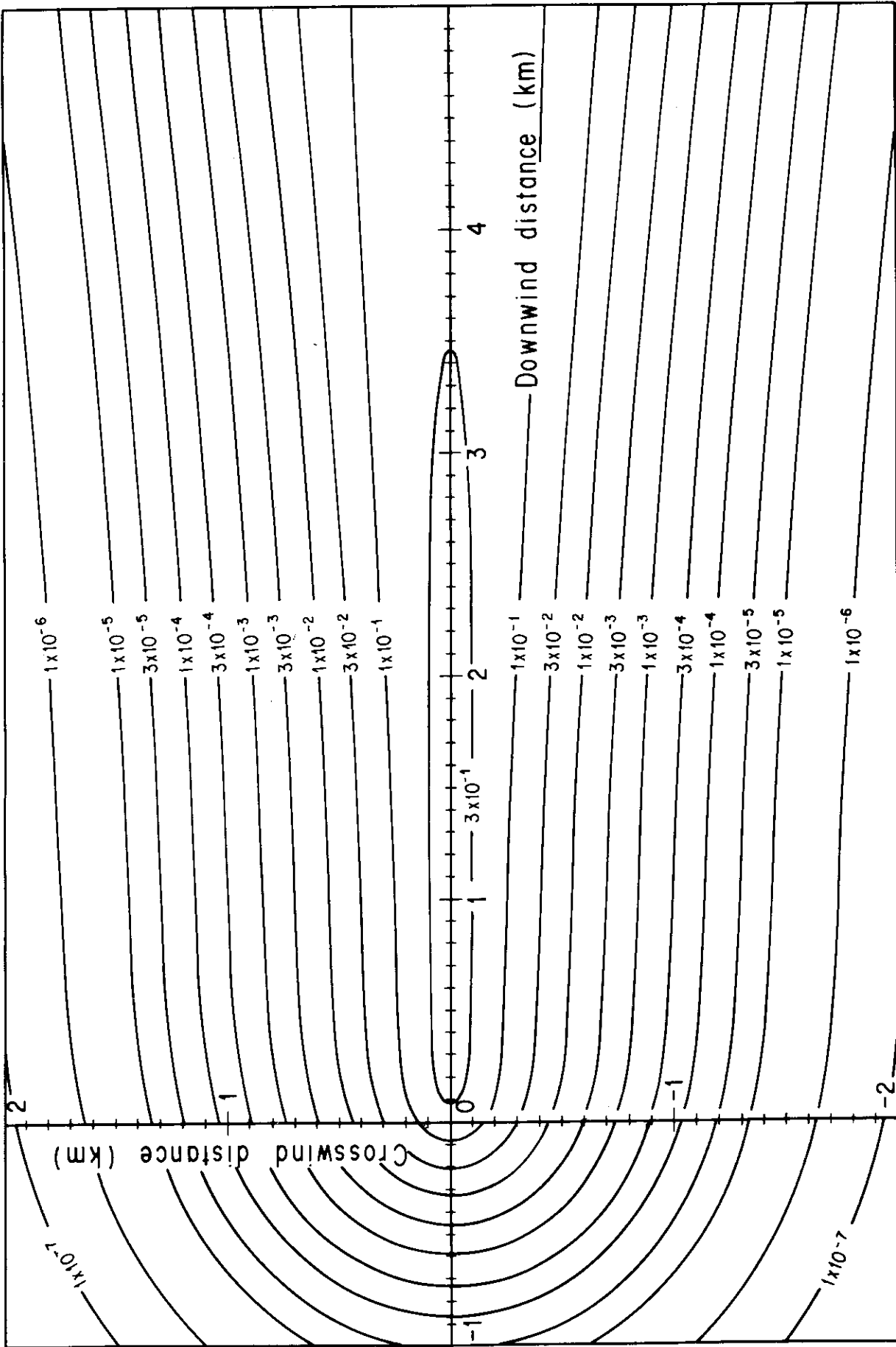


scale : 1/50000

Fig.4-11-3 (B) Isopleths of surface air absorbed dose rate

Q : 1 GBq/h Stack height : 140m
 E : 1 MeV/dis Stability : C
 U : 1 m/s

unit : nGy / h

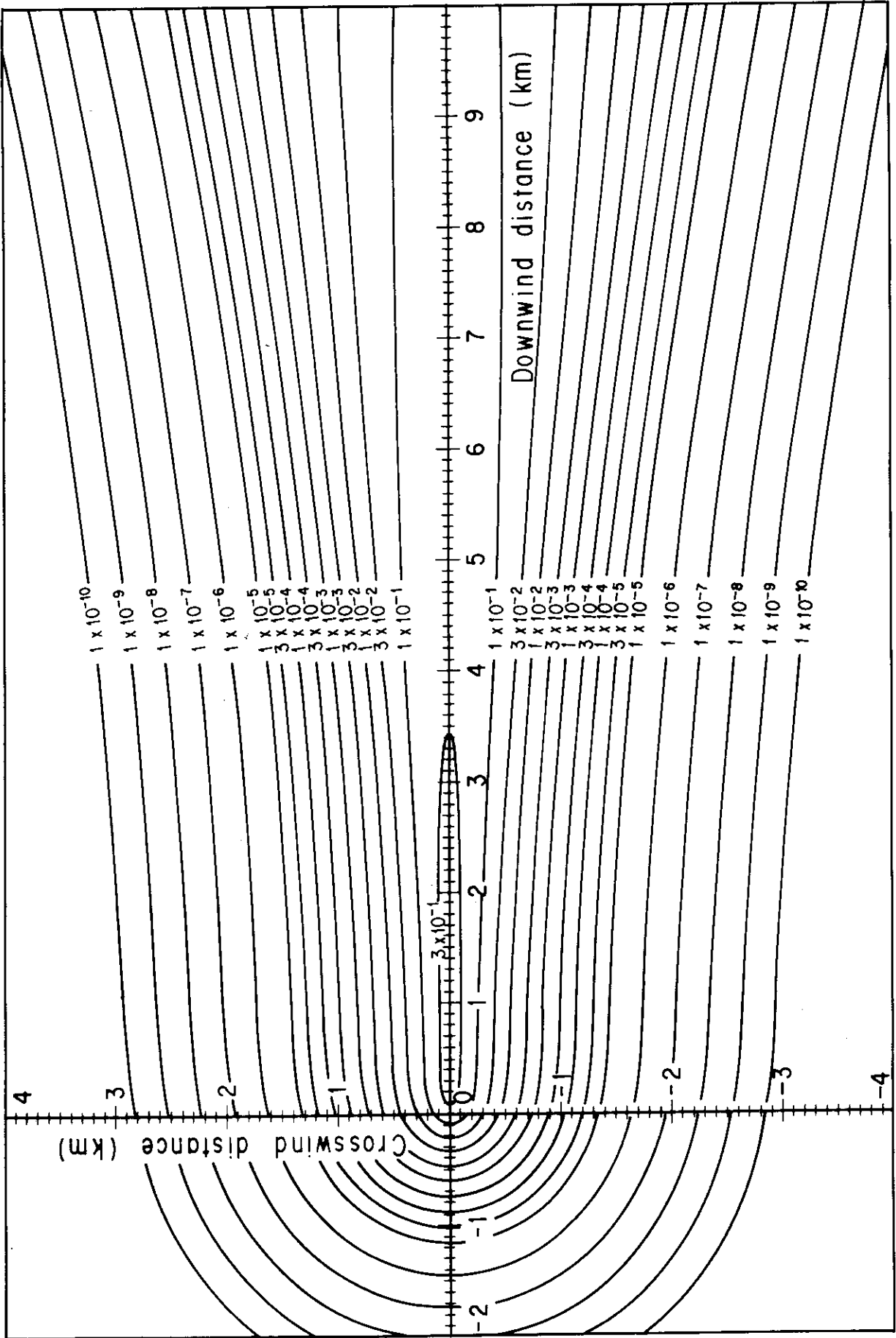


scale : 1/25000

Fig. 4-11-4 (A) Isopleths of surface air absorbed dose rate

Q : 1 GBq/h Stack height : 140m
 E : 1 MeV/dis Stability : D
 U : 1 m/s

unit : nGy / h

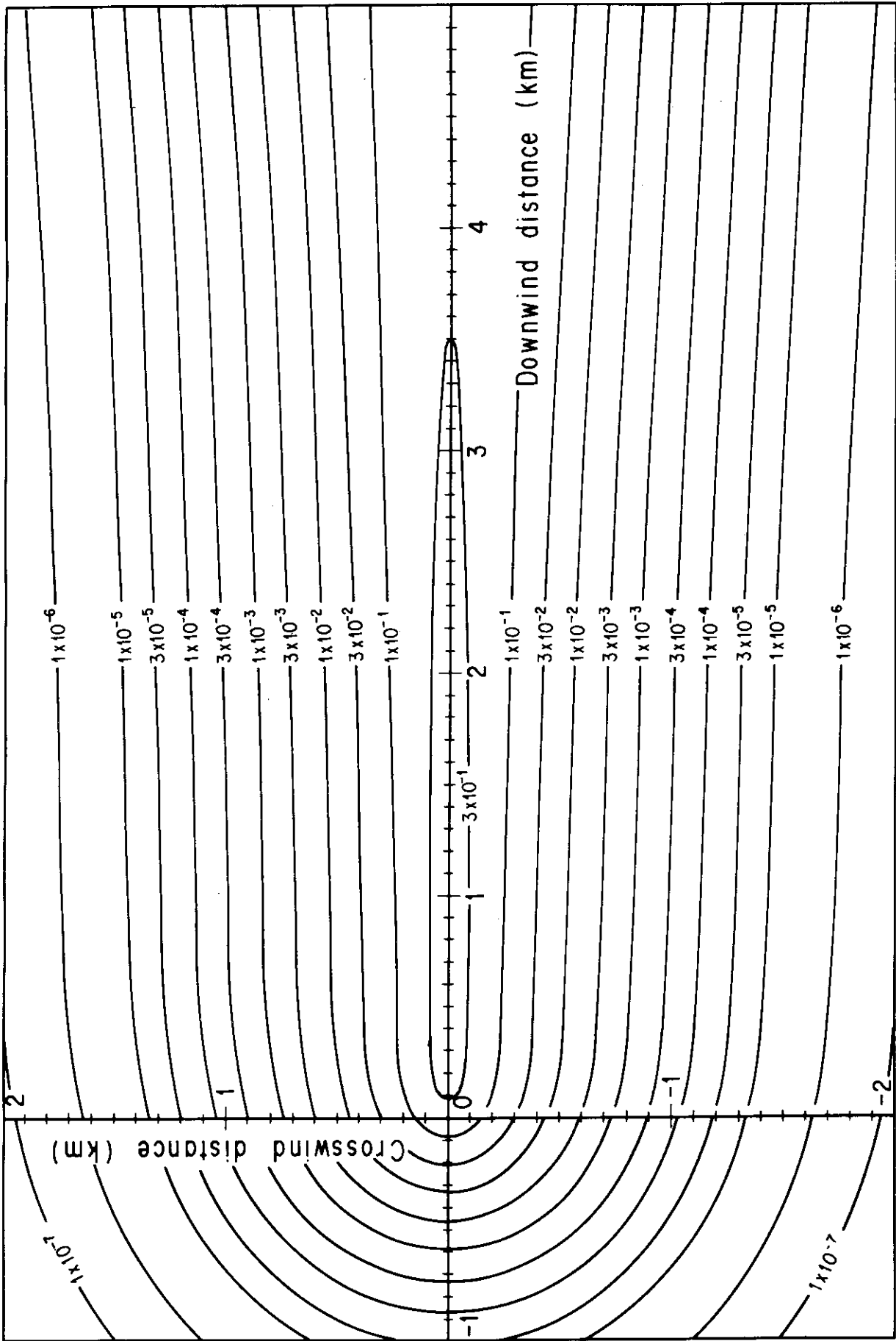


scale : 1 / 50000

Fig.4-11-4 (B) Isopleths of surface air absorbed dose rate

Q : 1 Gbq/h Stack height : 140 m
 E : 1 MeV/dis Stability : D
 U : 1 m/s

unit : nGy / h

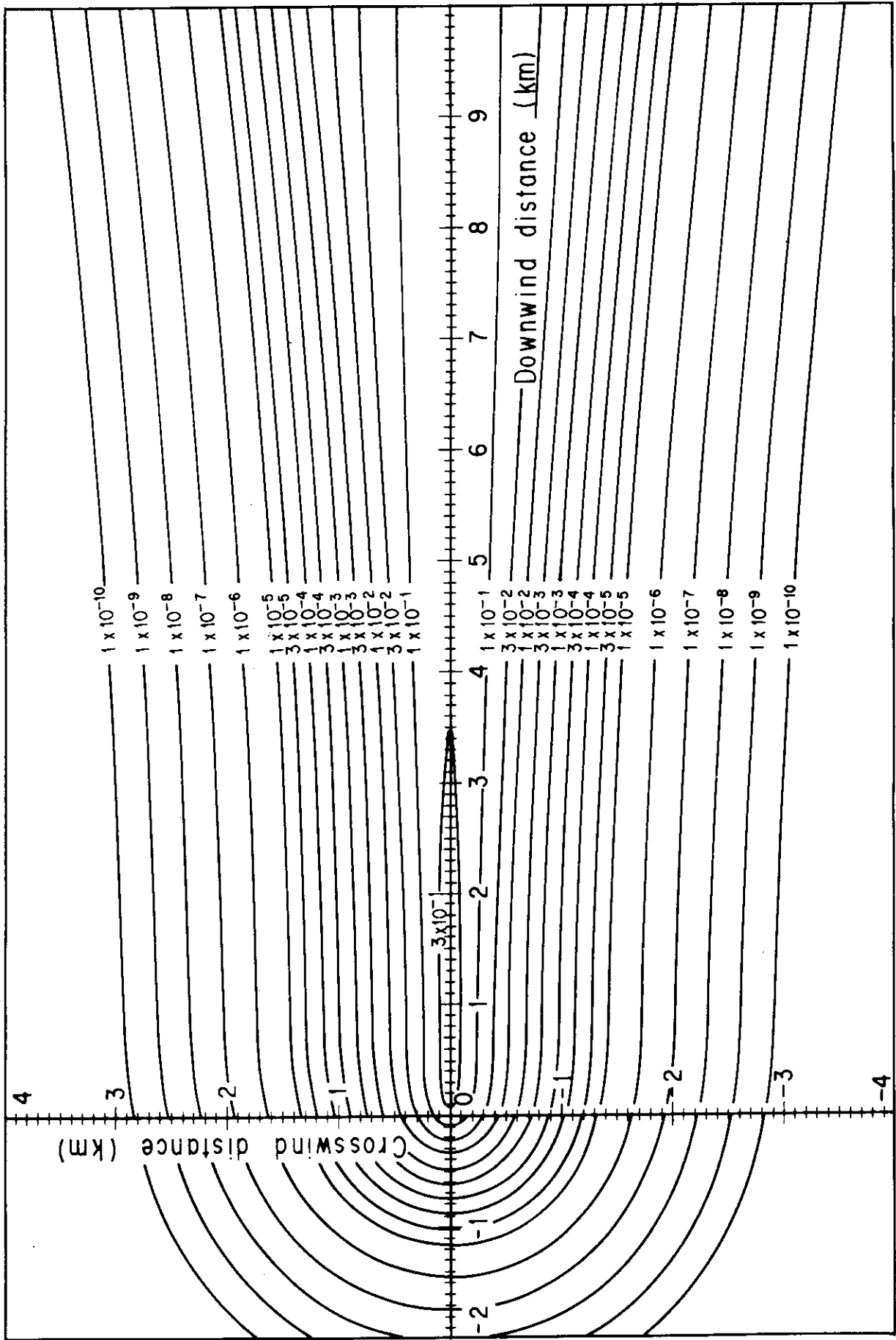


scale : 1/25000

Fig. 4-11-5 (A) Isopleths of surface air absorbed dose rate

Q : 1 GBq/h Stack height : 140m
E : 1 MeV/dis Stability : E
U : 1 m/s

unit : nGy / h



Q : 1 Gbq/h Stack height : 140 m
 E : 1 MeV/dis Stability : E
 U : 1 m/s

scale : 1/50000

Fig.4-11-5 (B) Isopleths of surface air absorbed dose rate

unit : nGy / h

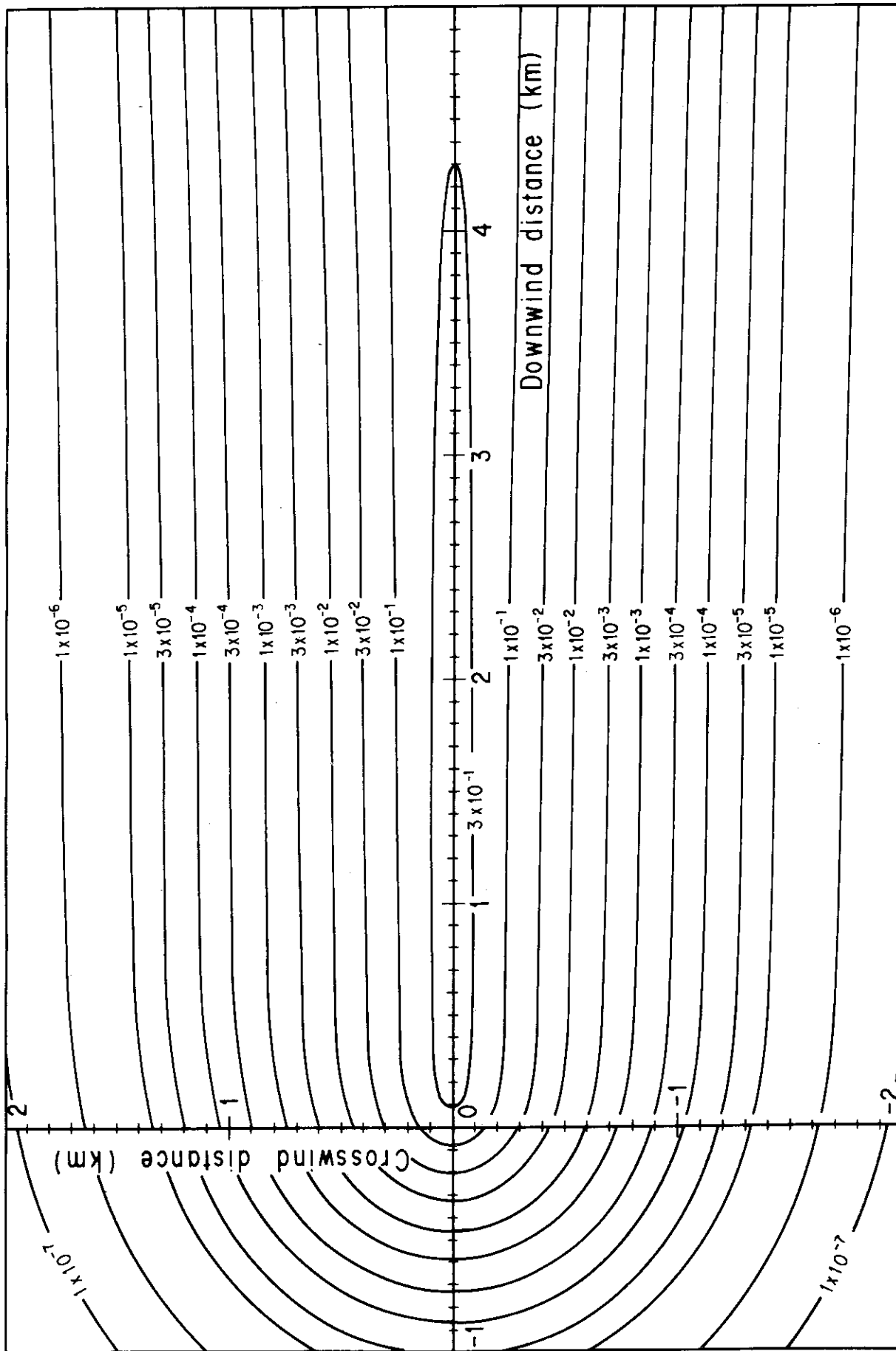
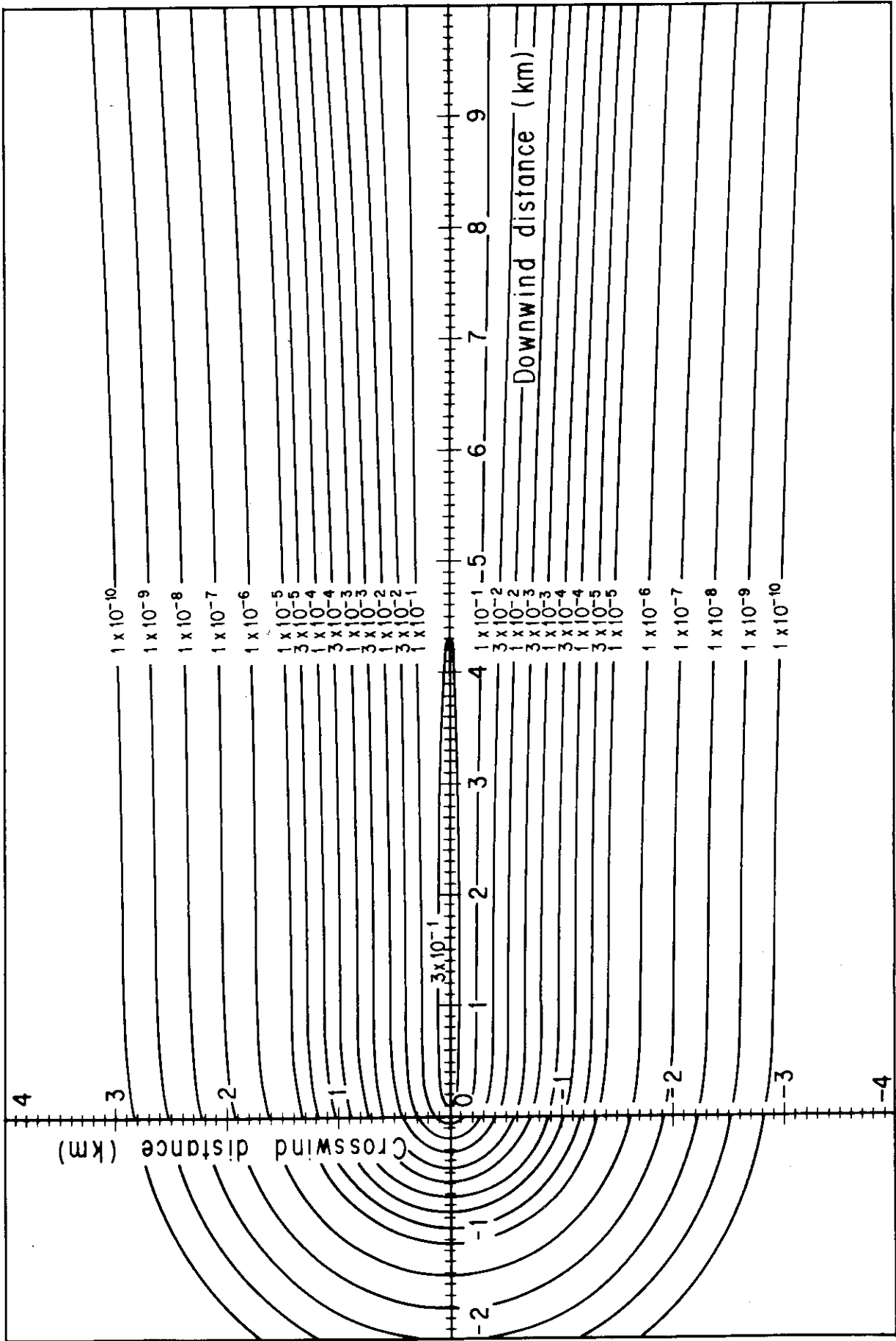


Fig. 4-11-6 (A) Isopleths of surface air absorbed dose rate

Q : 1 GBq/h Stack height : 140m
 E : 1 MeV/dis Stability : F
 U : 1 m/s

unit : nGy / h

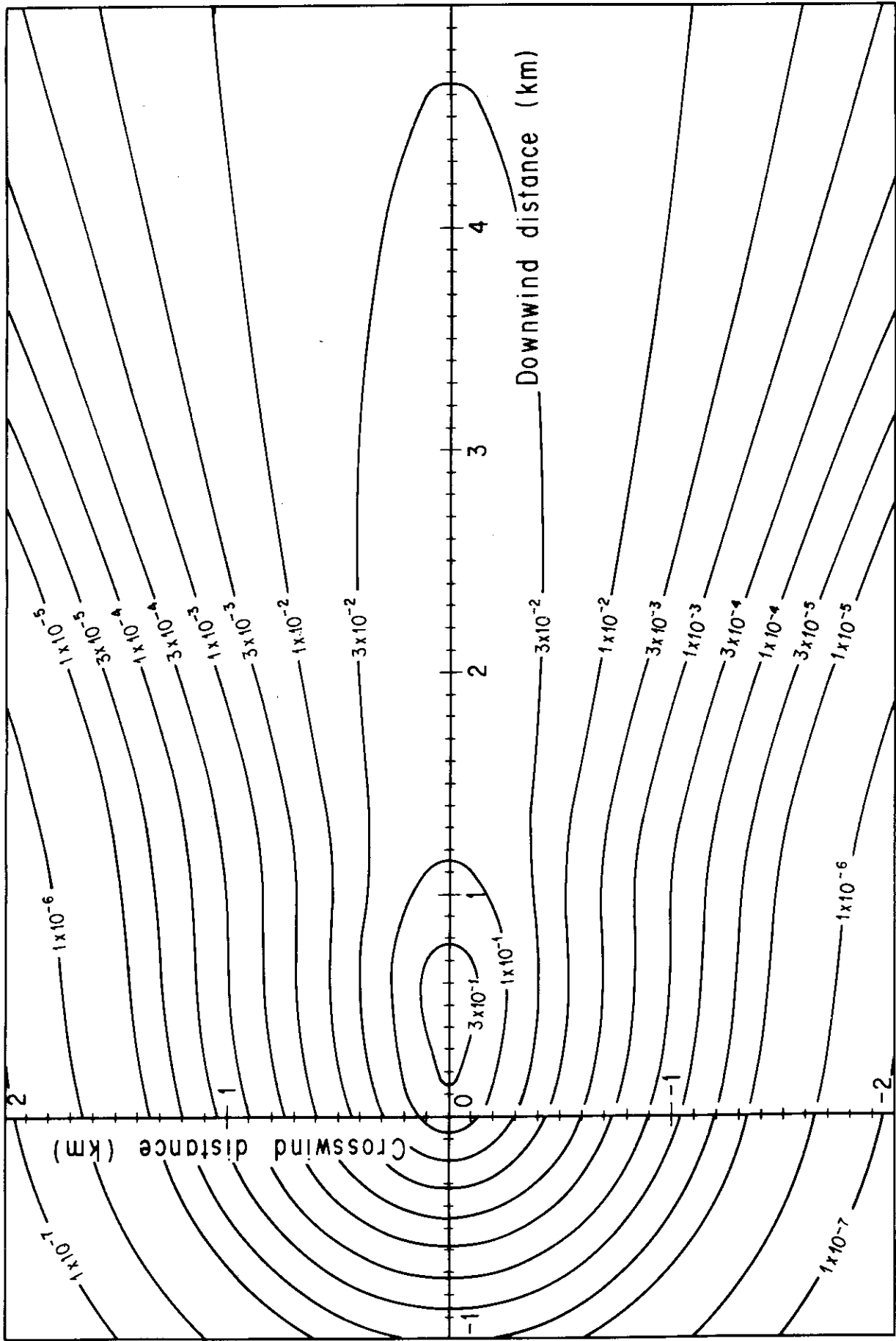


Q : 1 GBq/h Stack height : 140 m
 RE : 1 MeV/dis Stability : F
 U : 1 m/s

scale : 1 / 50000

Fig.4-11-6 (B) Isopleths of surface air absorbed dose rate

unit : nGy / h



scale : 1 / 25000

Fig. 4-12-1 (A) Isopleths of surface air absorbed dose rate

Q : 1 GBq/h Stack height : 150m
 E : 1 MeV/dis Stability : A
 U : 1 m/s

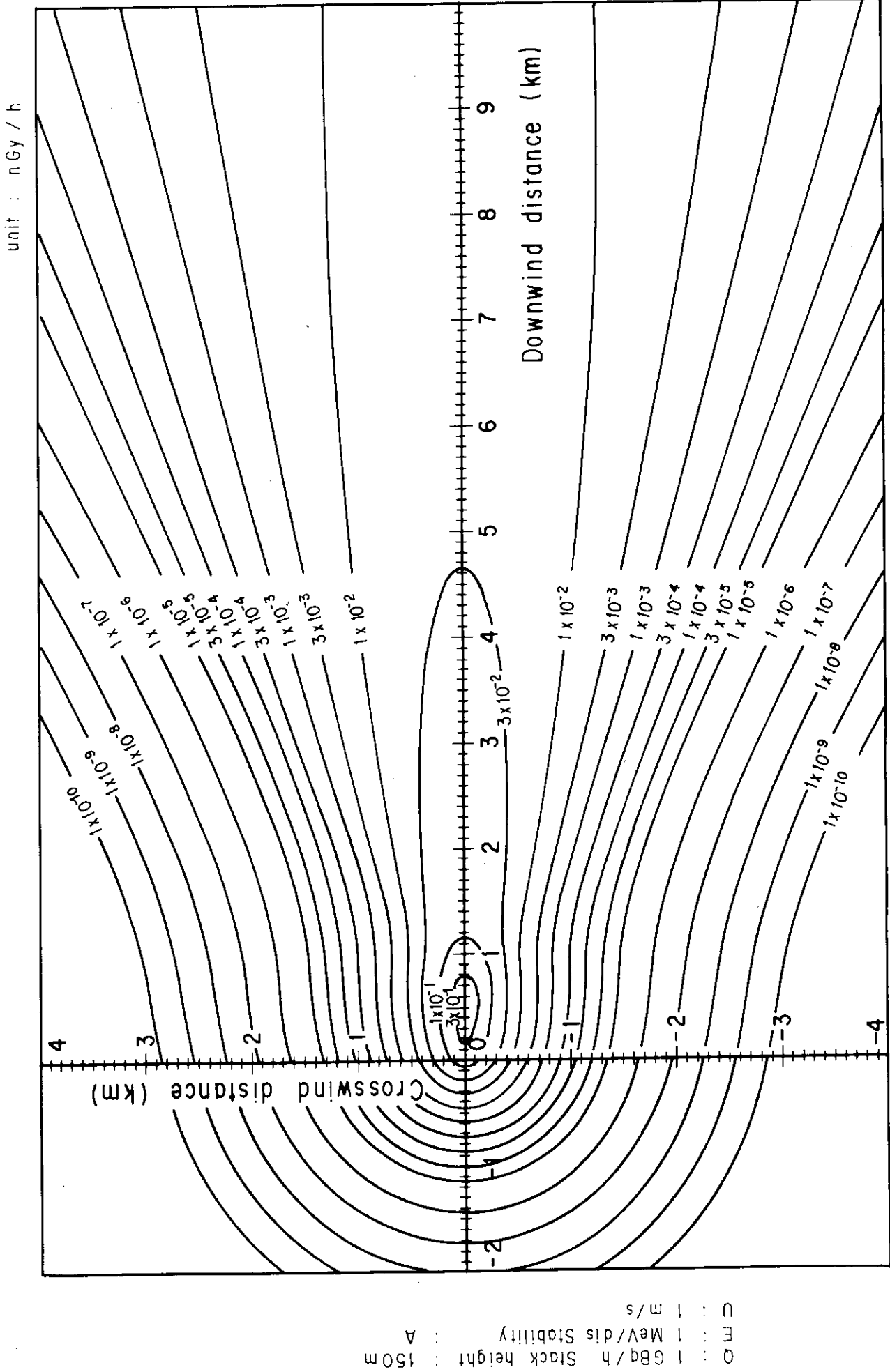
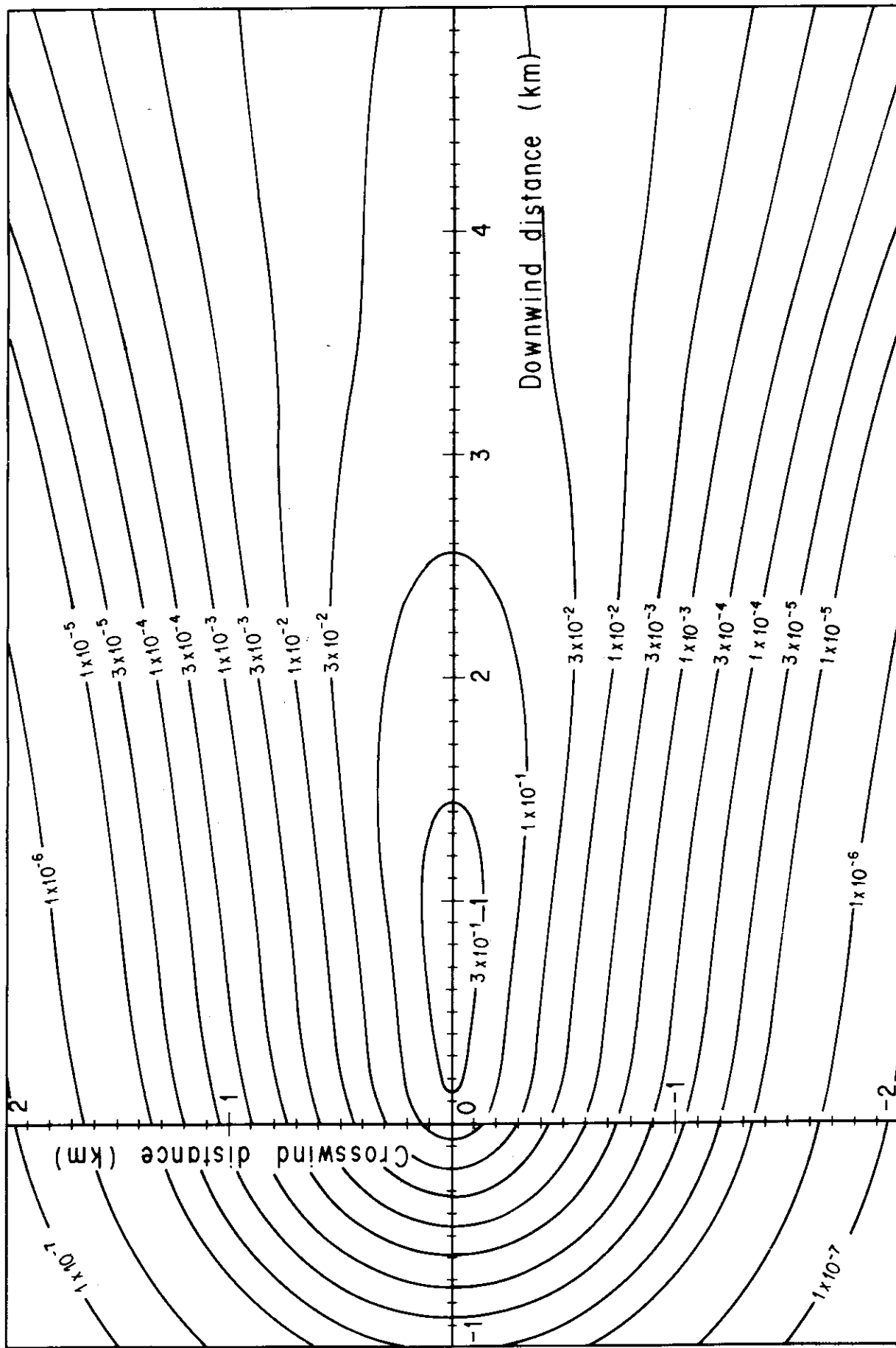


Fig. 4-12-1 (B) Isopleths of surface air absorbed dose rate

unit : nGy / h



scale : 1 / 25000

Fig. 4-12-2 (A) Isopleths of surface air absorbed dose rate

Q : 1 GBq/h Stack height : 150 m
 E : 1 MeV/dis Stability : B
 U : 1 m/s

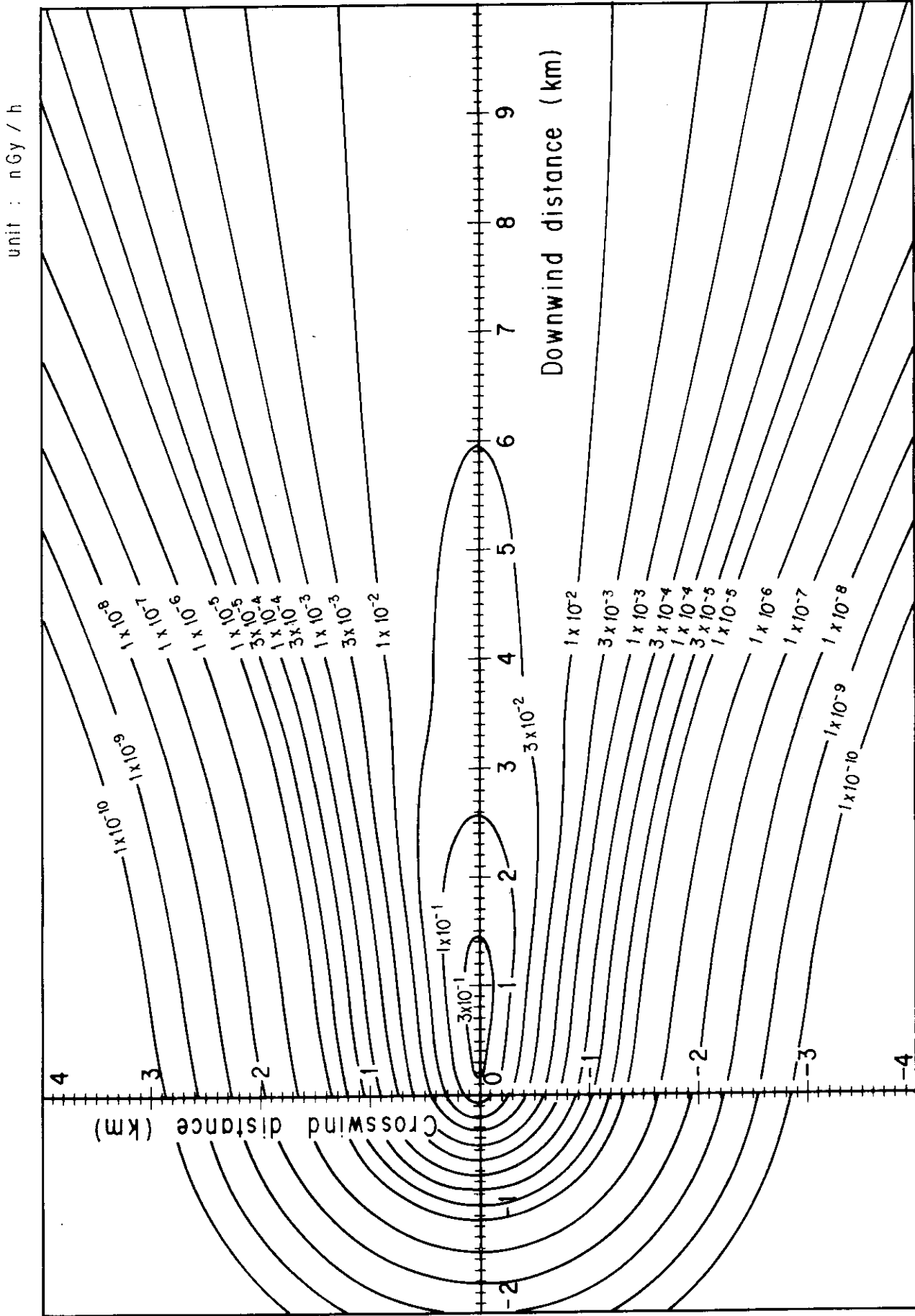
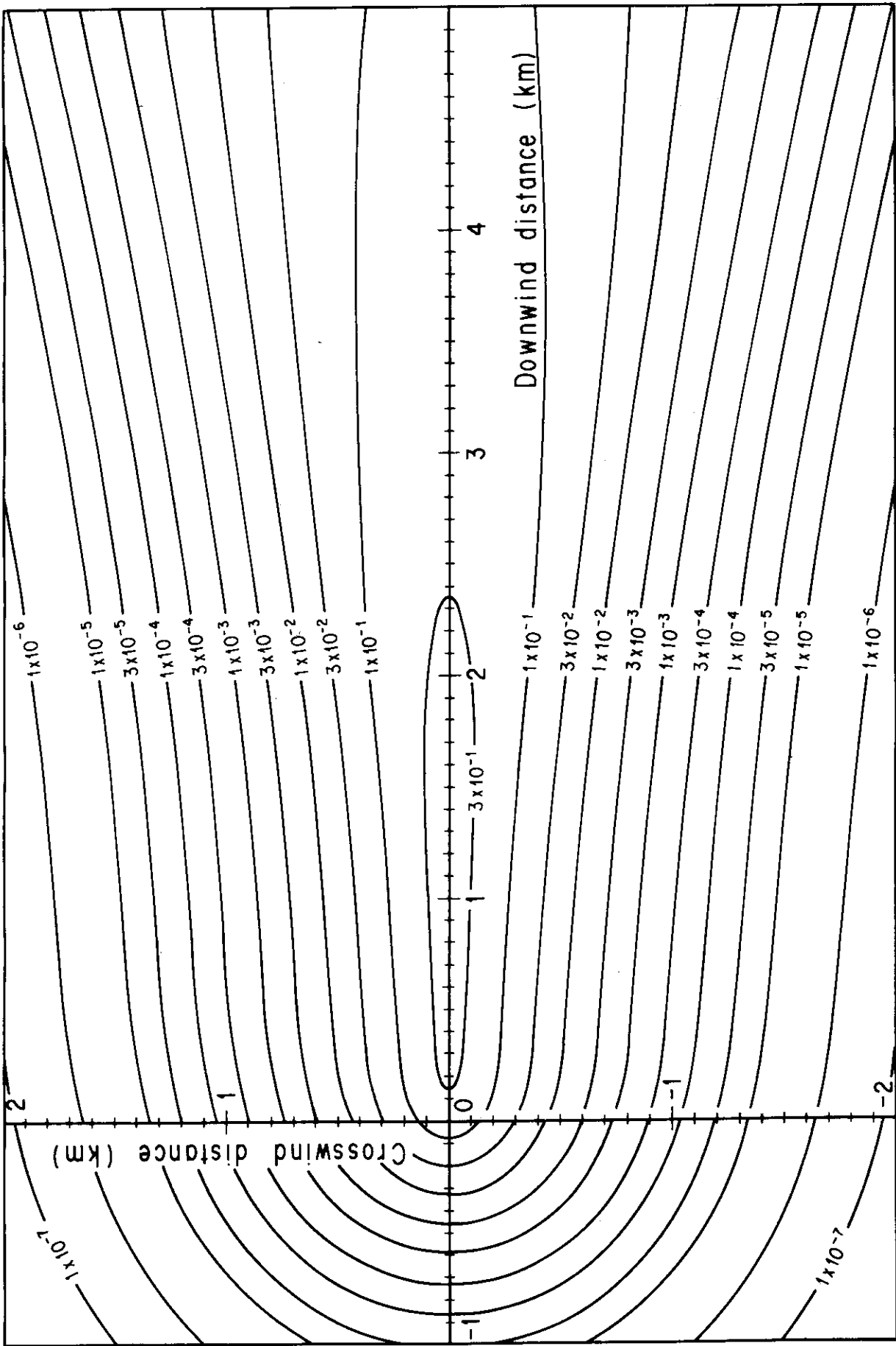


Fig. 4-12-2 (B) Isopleths of surface air absorbed dose rate

Q : 1 GBq/h Stack height : 150 m
 E : 1 MeV/dis Stability : B
 U : 1 m/s

unit : nGy / h



scale : 1/25000

Fig. 4-12-3 (A) Isopleths of surface air absorbed dose rate

Q : 1 GBq/h Stack height : 150 m
 E : 1 MeV/dis Stability : C
 U : 1 m/s

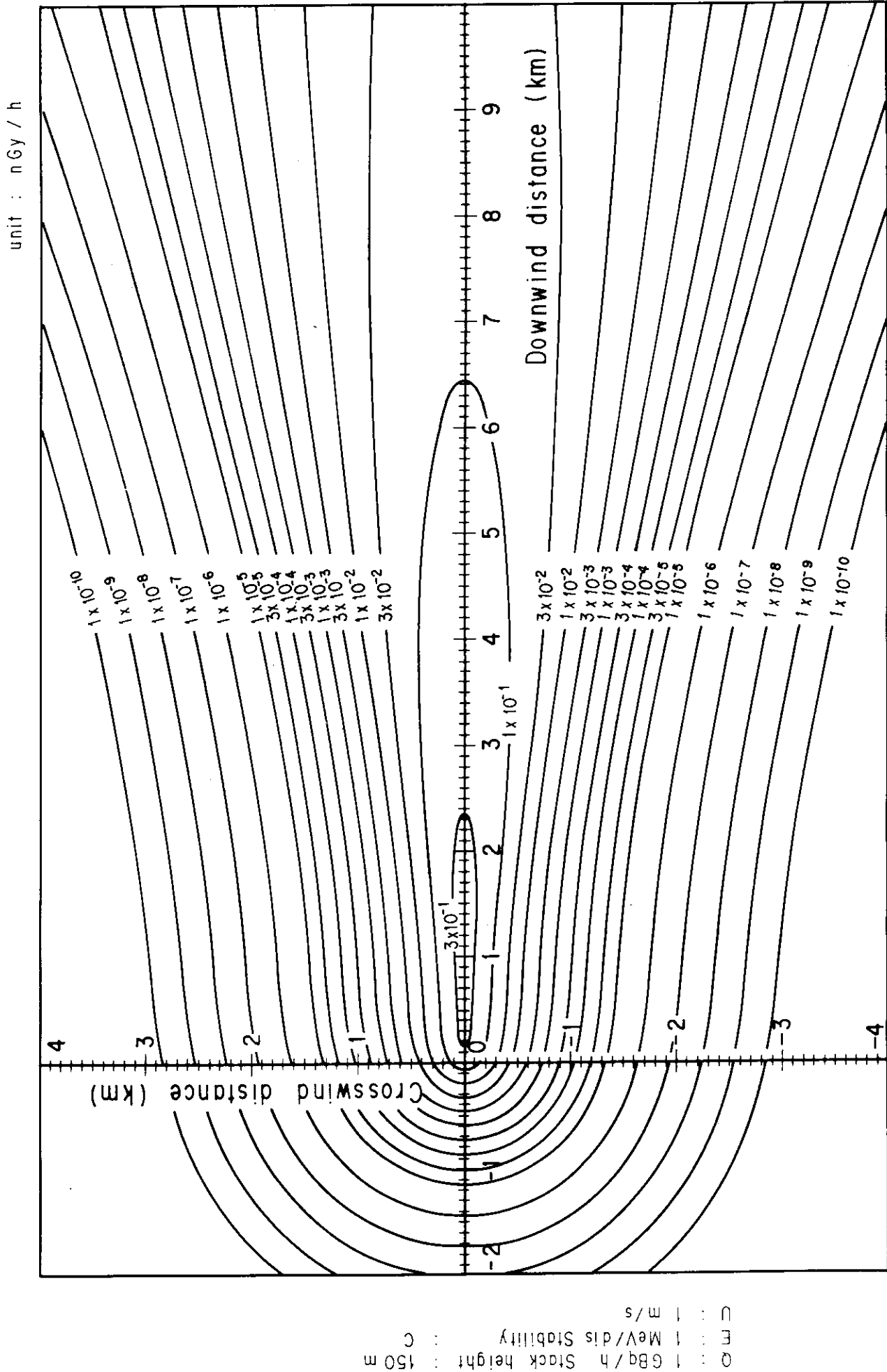
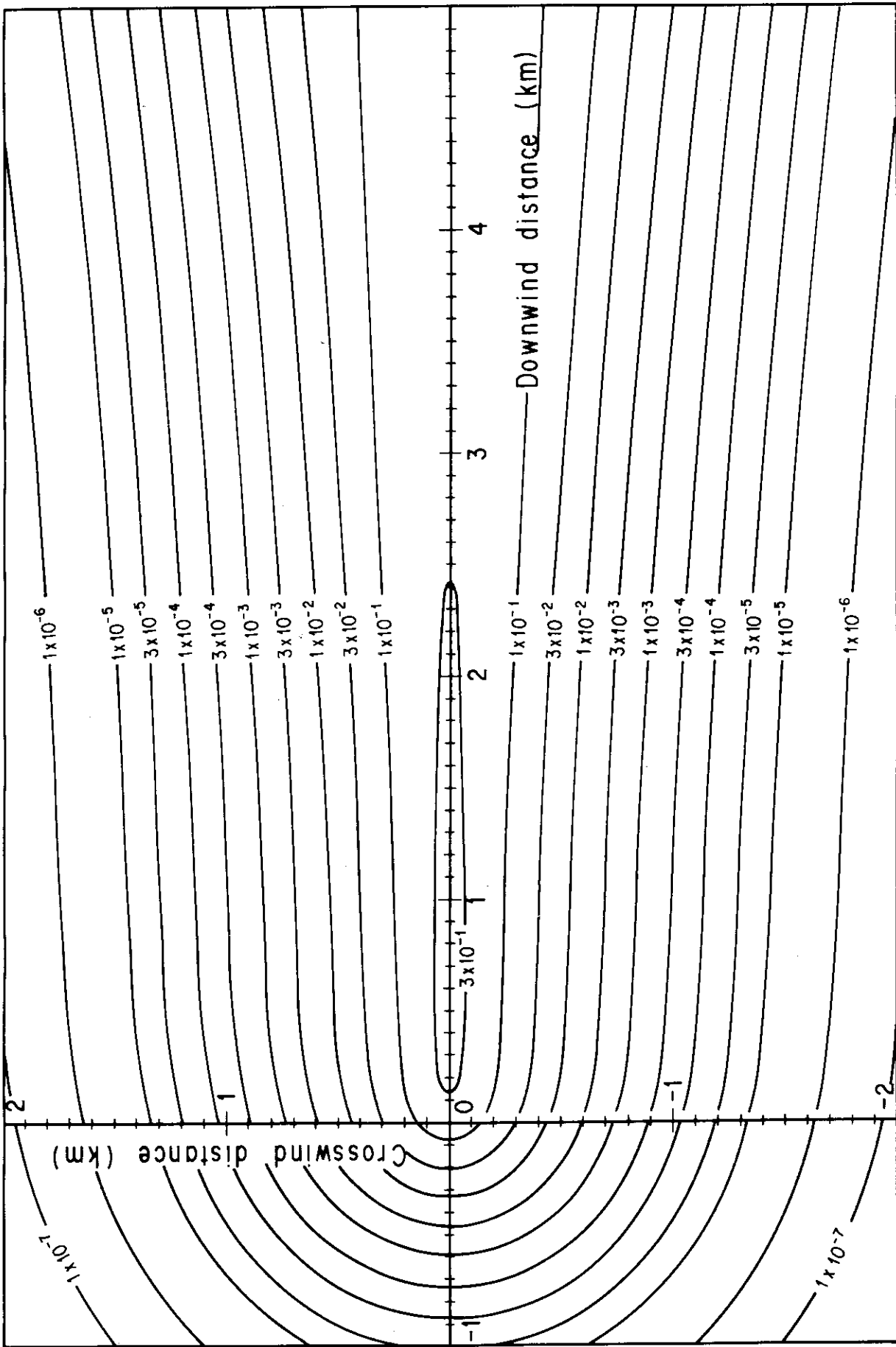


Fig. 4-12-3 (B) Isopleths of surface air absorbed dose rate

unit : nGy / h

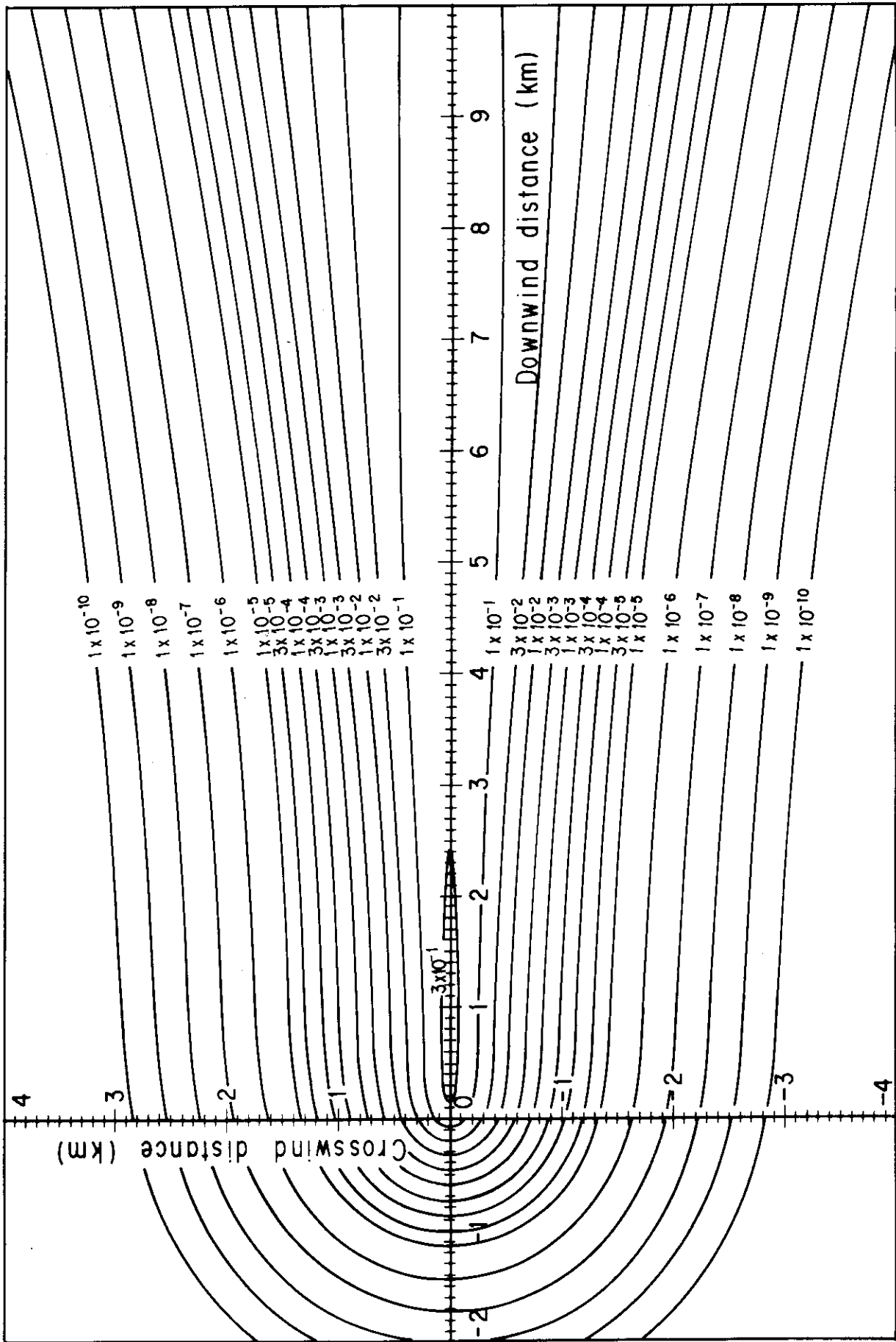


scale : 1 / 25000

Fig. 4-12-4 (A) Isopleths of surface air absorbed dose rate

Q : 1 GBq/h Stack height : 150
 E : 1 MeV/dis Stability : D
 U : 1 m/s

unit : nGy / h

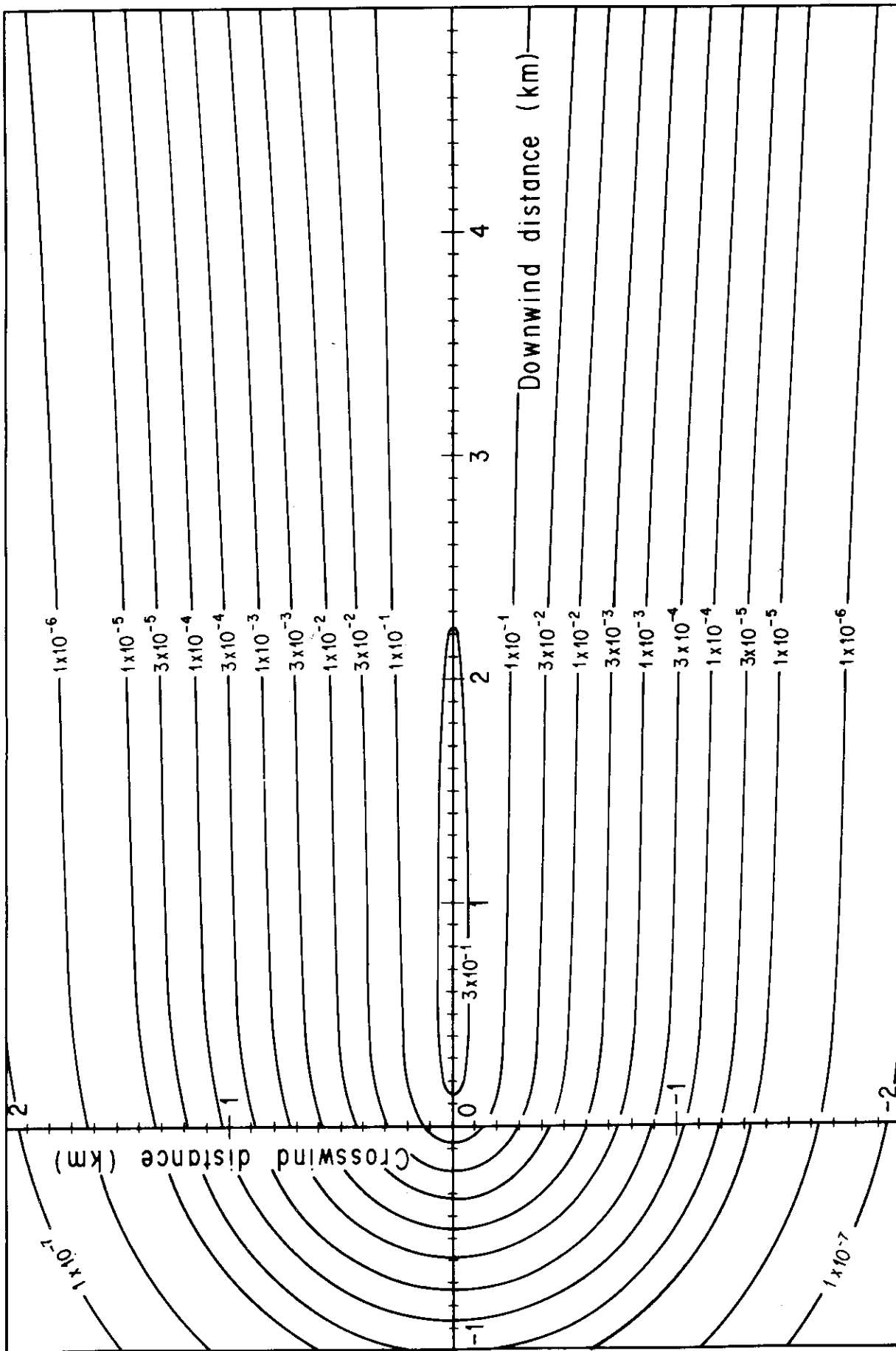


scale : 1/50000

Fig.4-12-4 (B) Isopleths of surface air absorbed dose rate

0 : 1 GBq/h Stack height : 150 m
 E : 1 MeV/dis Stability : D
 U : 1 m/s

unit : nGy / h

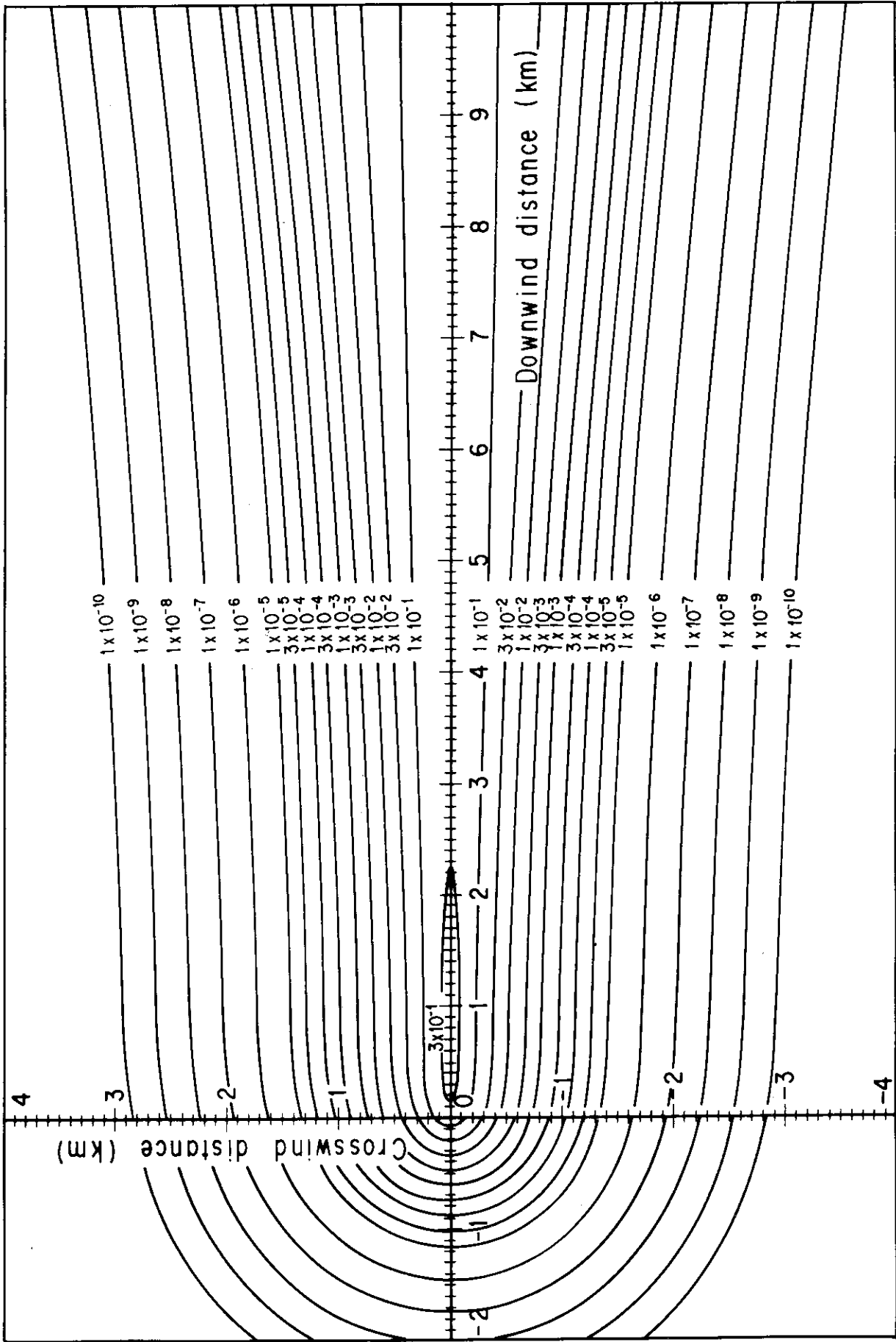


scale : 1/25000

Fig. 4-12-5 (A) Isopleths of surface air absorbed dose rate

Q : 1 GBq/h Stack height : 150 m
 E : 1 MeV/dis Stability : E
 U : 1 m/s

unit : nGy / h

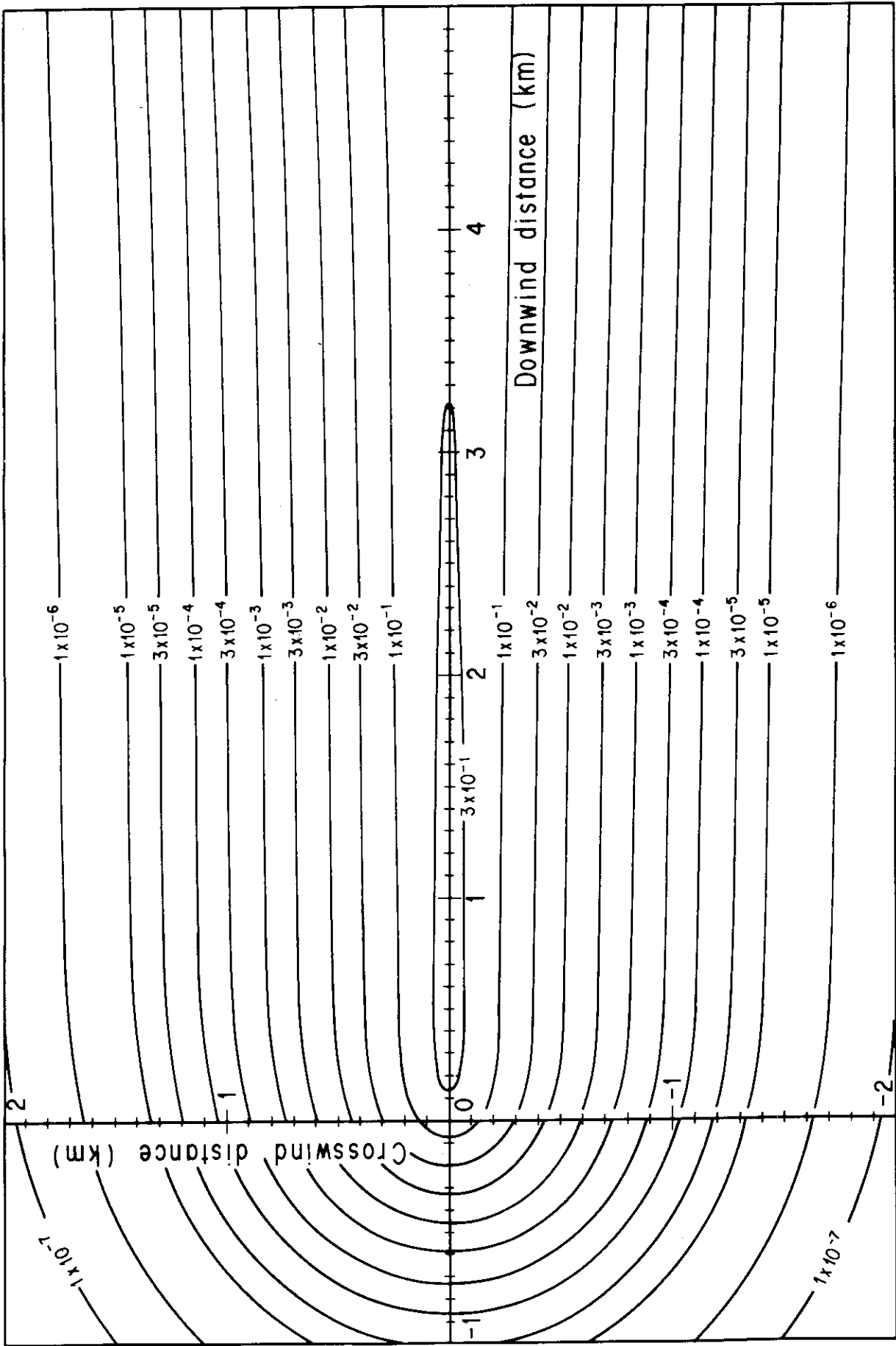


scale : 1/50000

Fig. 4-12-5 (B) Isopleths of surface air absorbed dose rate

Q : 1 Gbq/h Stack height : 150m
 E : 1 MeV/dis Stability : E
 U : 1 m/s

unit : nGy / h

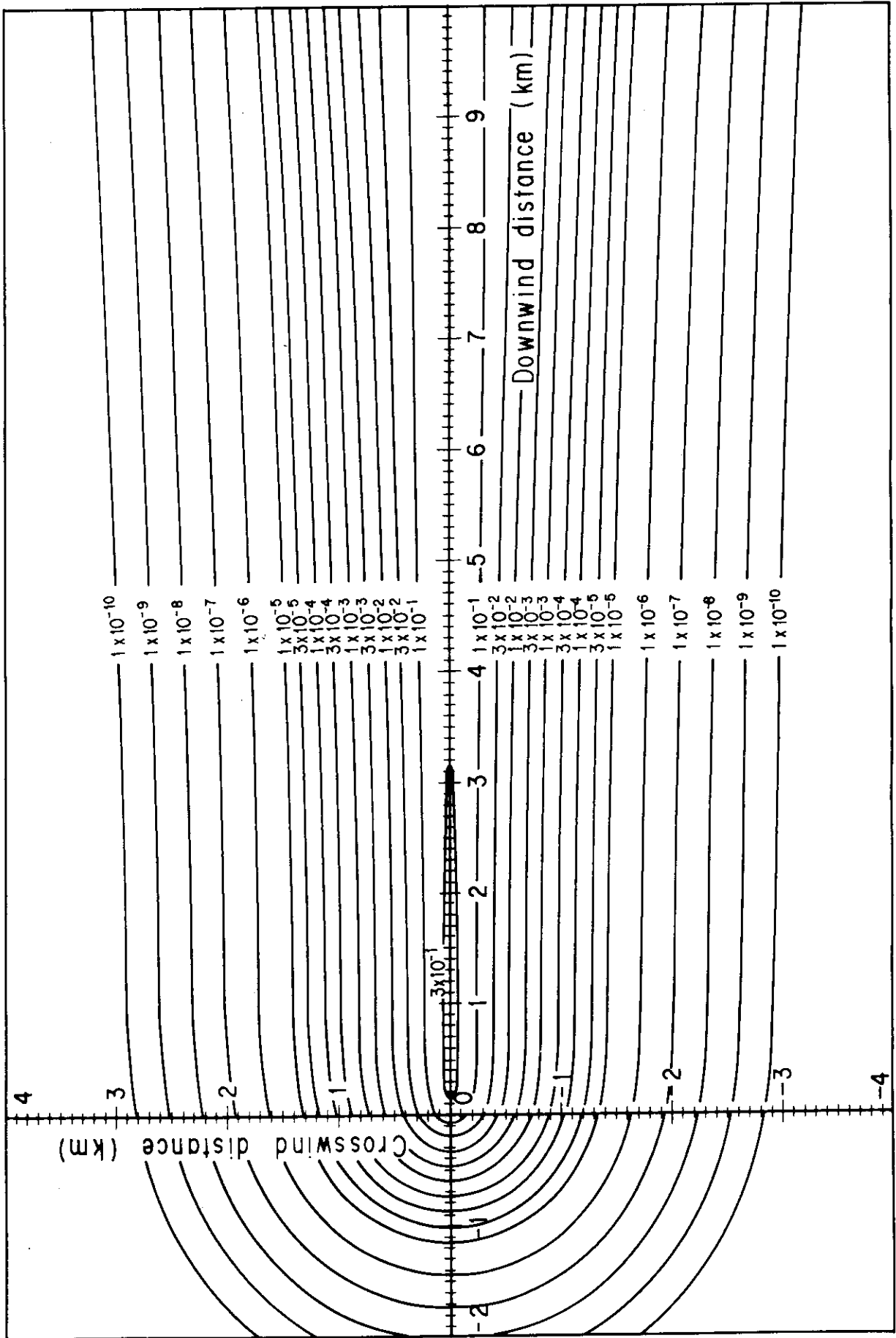


Q : 1 GBq/h Stack height : 150 m
 E : 1 MeV/dis Stability : F
 U : 1 m/s

scale : 1/25000

Fig. 4-12-6 (A) Isopleths of surface air absorbed dose rate

unit : nGy / h

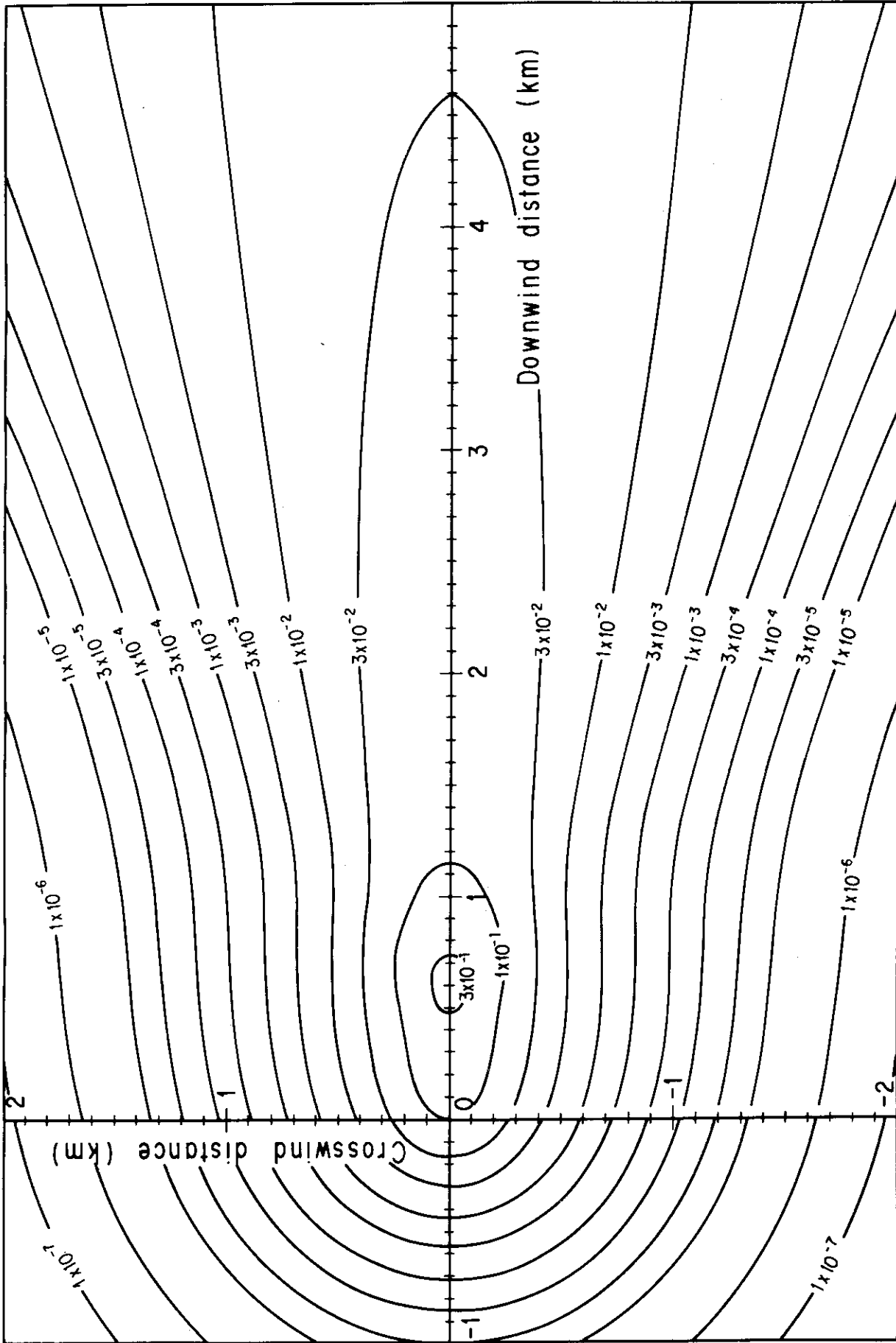


scale : 1 / 50000

Fig. 4-12-6 (B) Isopleths of surface air absorbed dose rate

Q : 1 GBq/h Stack height : 150 m
 E : 1 MeV/dis Stability : F
 U : 1 m/s

unit : nGy / h

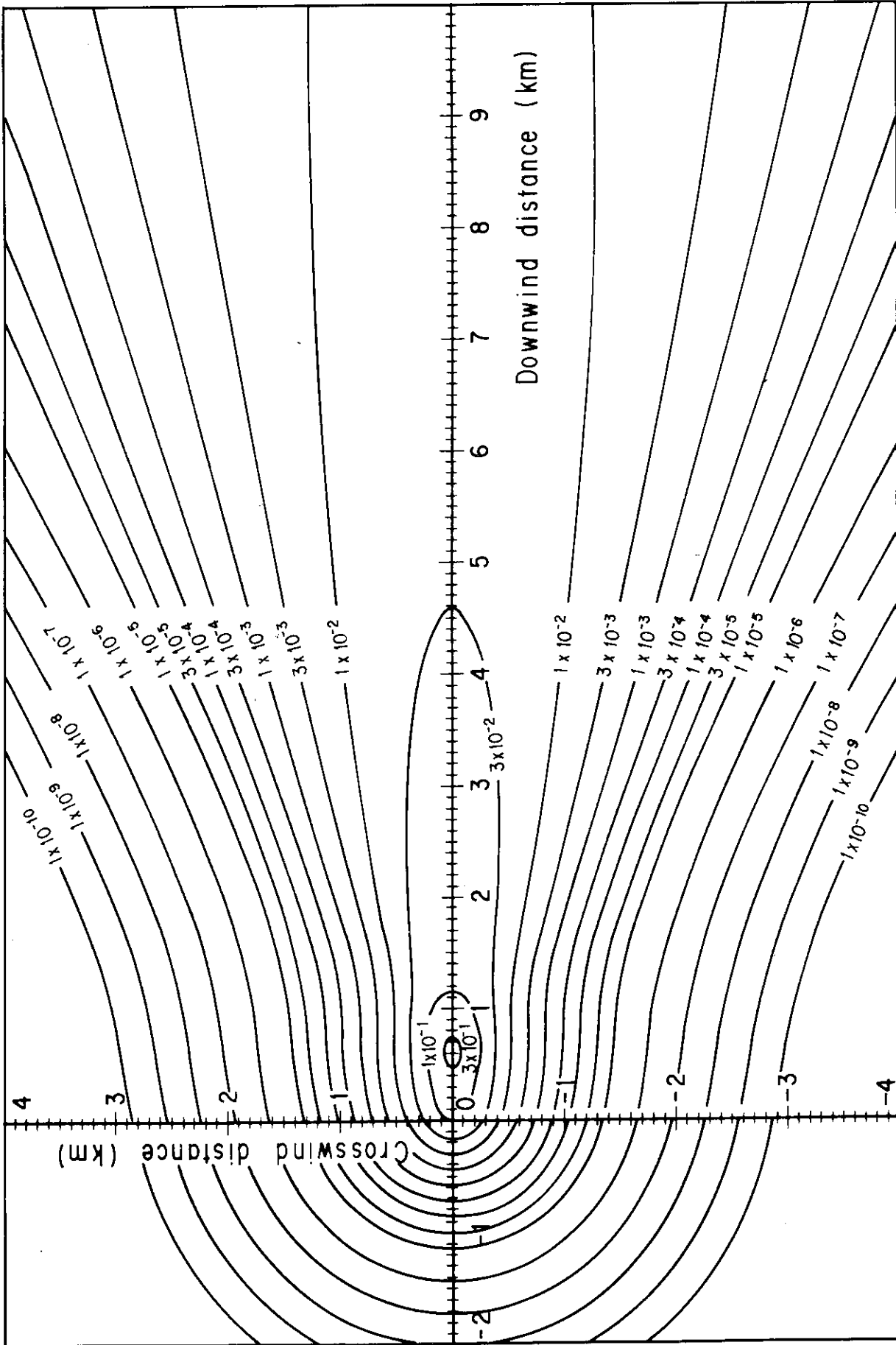


scale : 1 / 25000

Fig. 4-13-1 (A) Isopleths of surface air absorbed dose rate

Q : 1 Gbq/h Stack height : 200m
 E : 1 MeV/dis Stability : A
 U : 1 m/s

unit : nGy / h

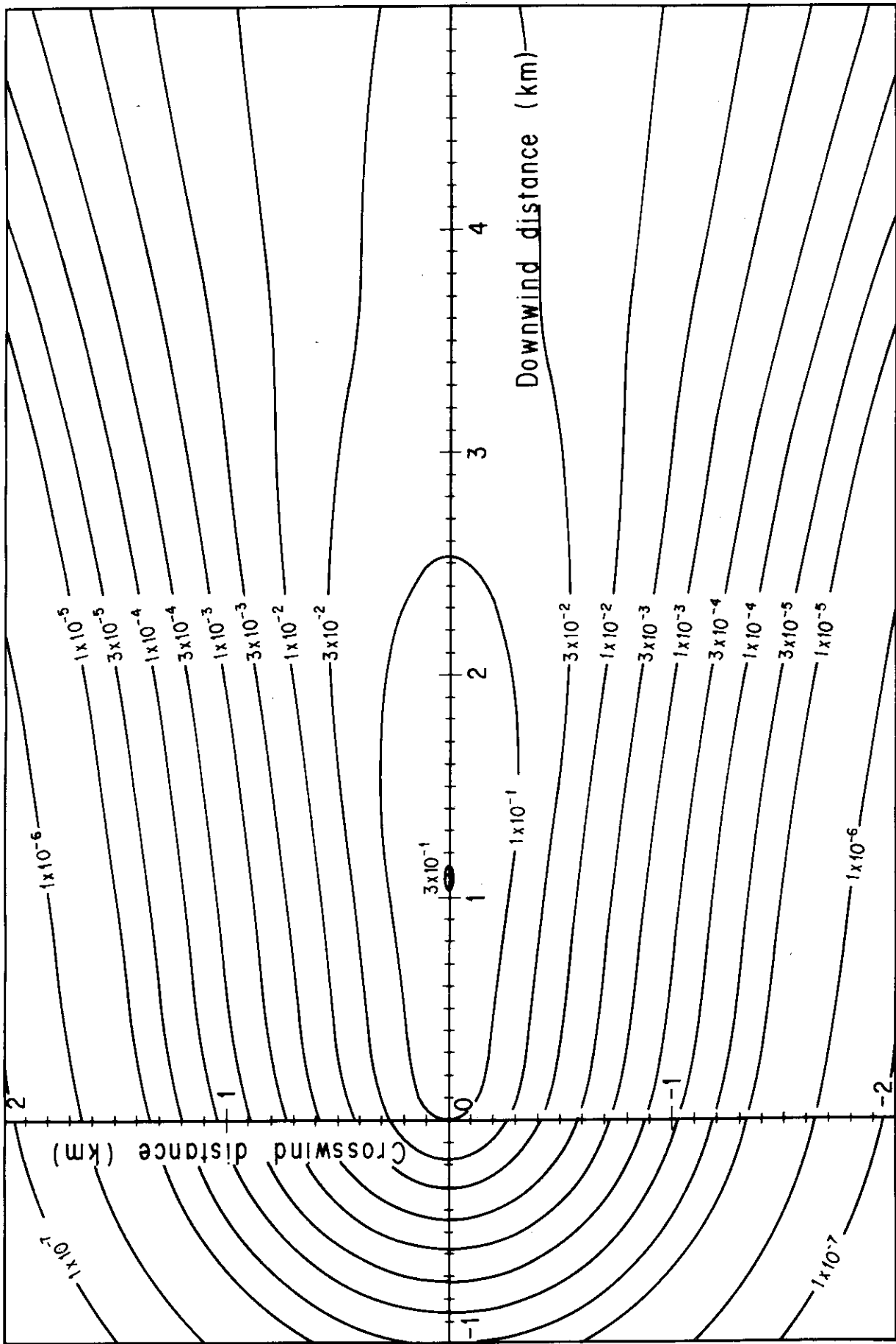


scale : 1 / 50000

Q : 1 GBq/h Stack height : 200m
E : 1 MeV/dis Stability : A
U : 1 m/s

Fig. 4-13-1 (B) Isopleths of surface air absorbed dose rate

unit : nGy / h

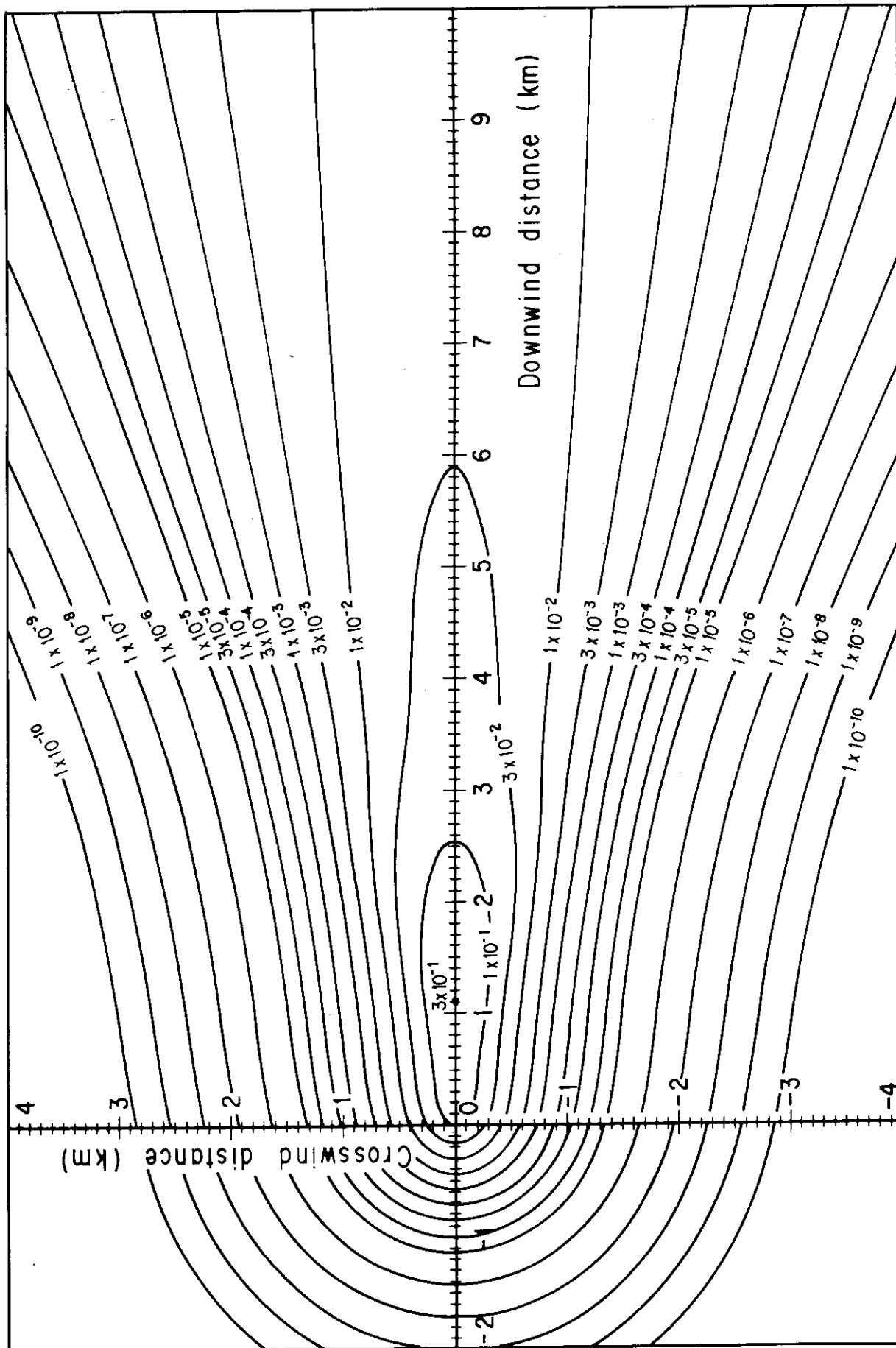


scale : 1 / 25000

Fig. 4-13-2 (A) Isopleths of surface air absorbed dose rate

Q : 1 GBq/h Stack height : 200m
 E : 1 MeV/dis Stability : B
 U : 1 m/s

unit : nGy / h

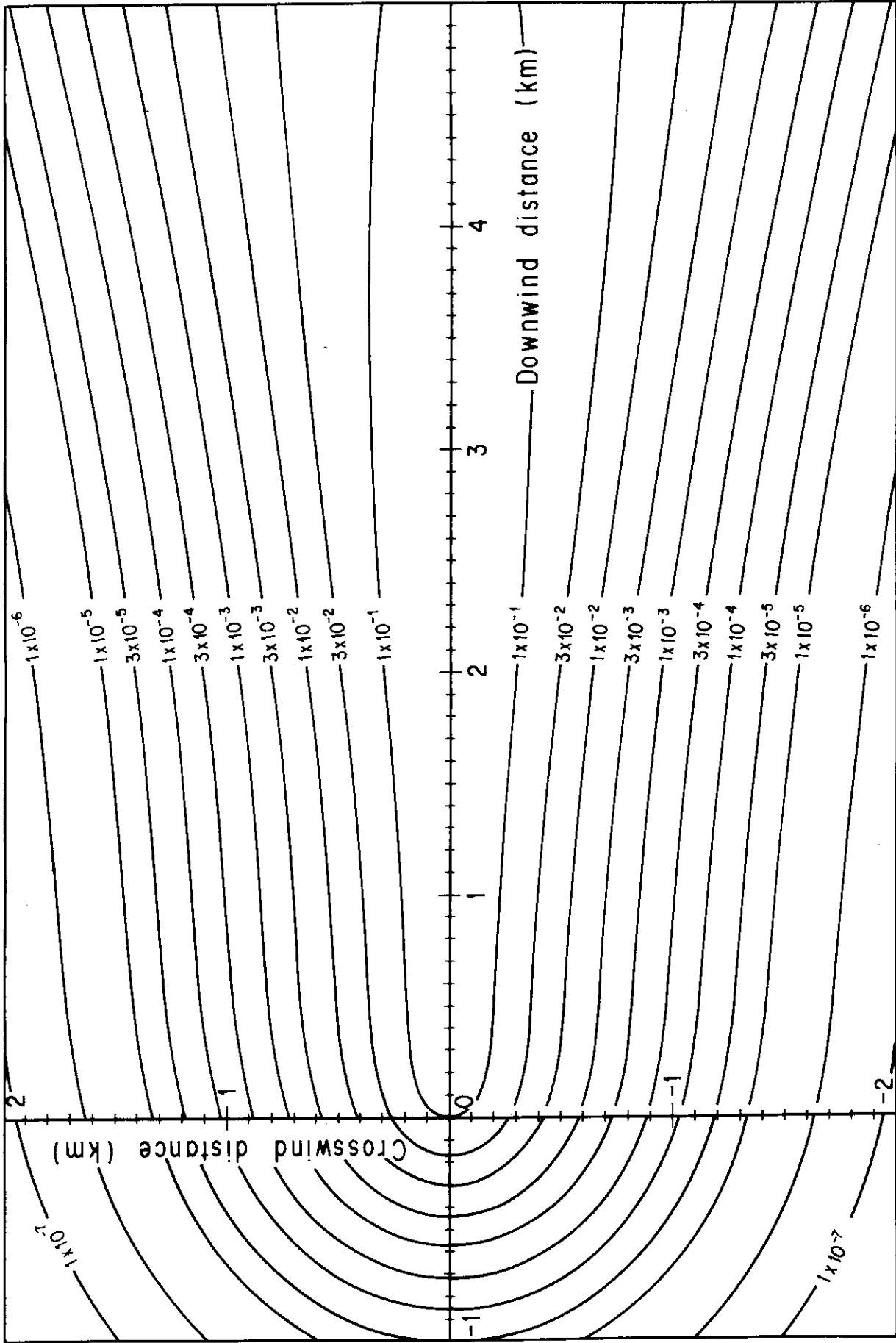


scale : 1 / 50000

Fig. 4-13-2 (B) Isopleths of surface air absorbed dose rate

Q : 1 GBq/h Stack height : 200m
E : 1 MeV/dis Stability : B
U : 1 m/s

unit : nGy / h



scale : 1 / 25000

Fig. 4-13-3 (A) Isopleths of surface air absorbed dose rate

Q : 1 GBq/h Stack height : 200 m
E : 1 MeV/dis Stability : C
U : 1 m/s

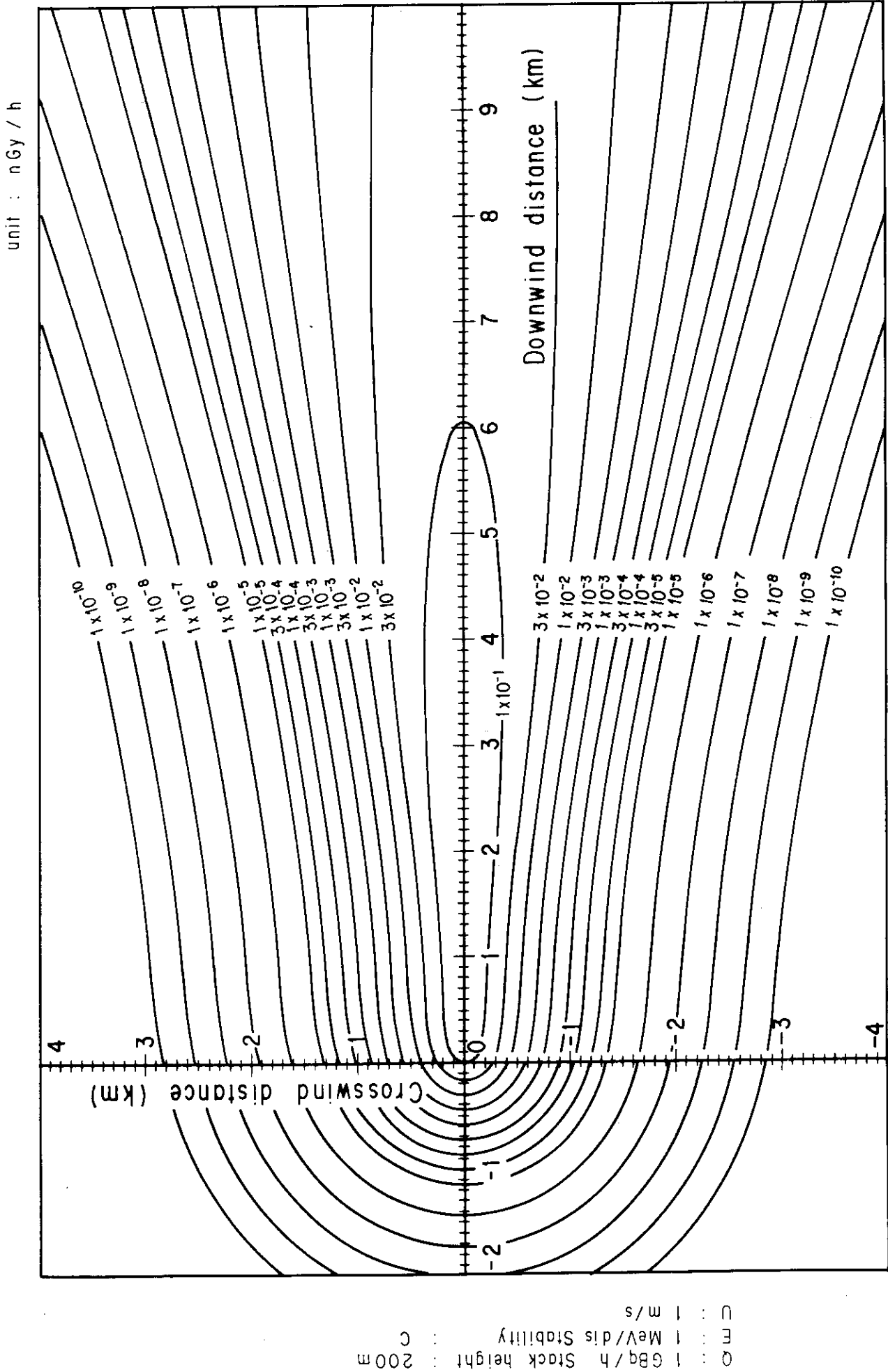
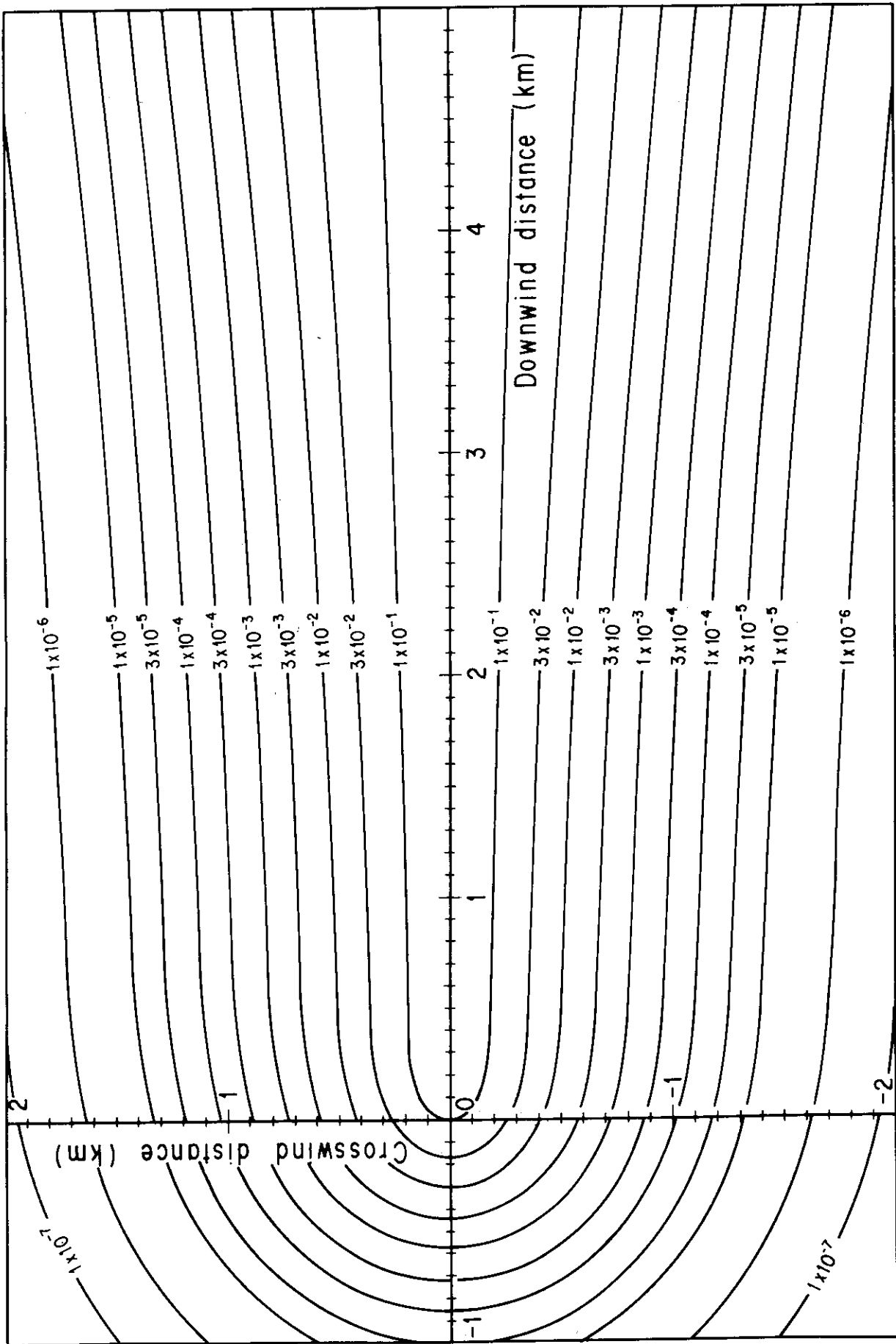


Fig. 4-13-3 (B) Isopleths of surface air absorbed dose rate

unit : nGy / h

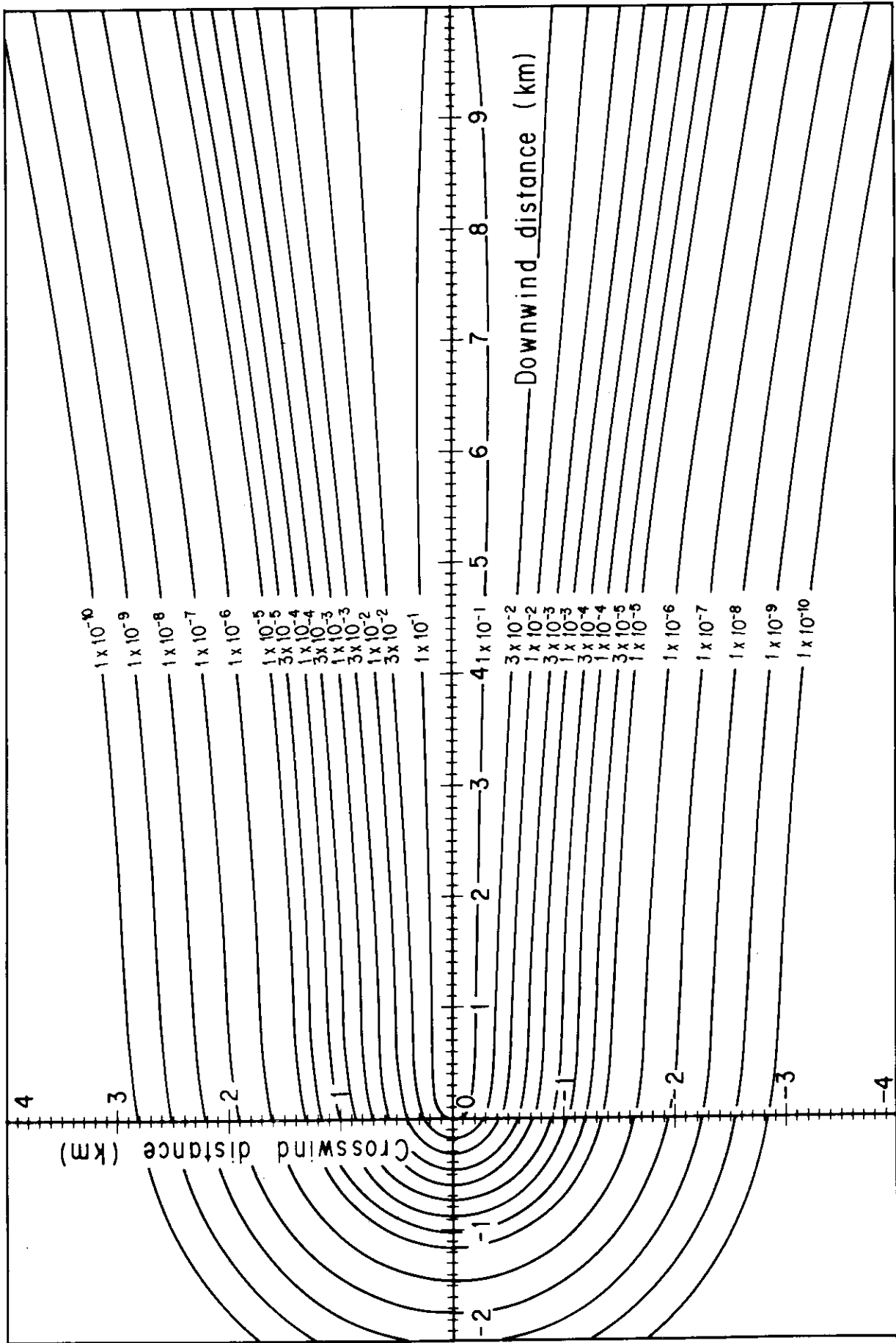


scale : 1 / 25000

Fig.4-13-4 (A) Isopleths of surface air absorbed dose rate

Q : 1 GBq/h Stack height : 200 m
 E : 1 MeV/dis Stability : D
 U : 1 m/s

unit : nGy / h

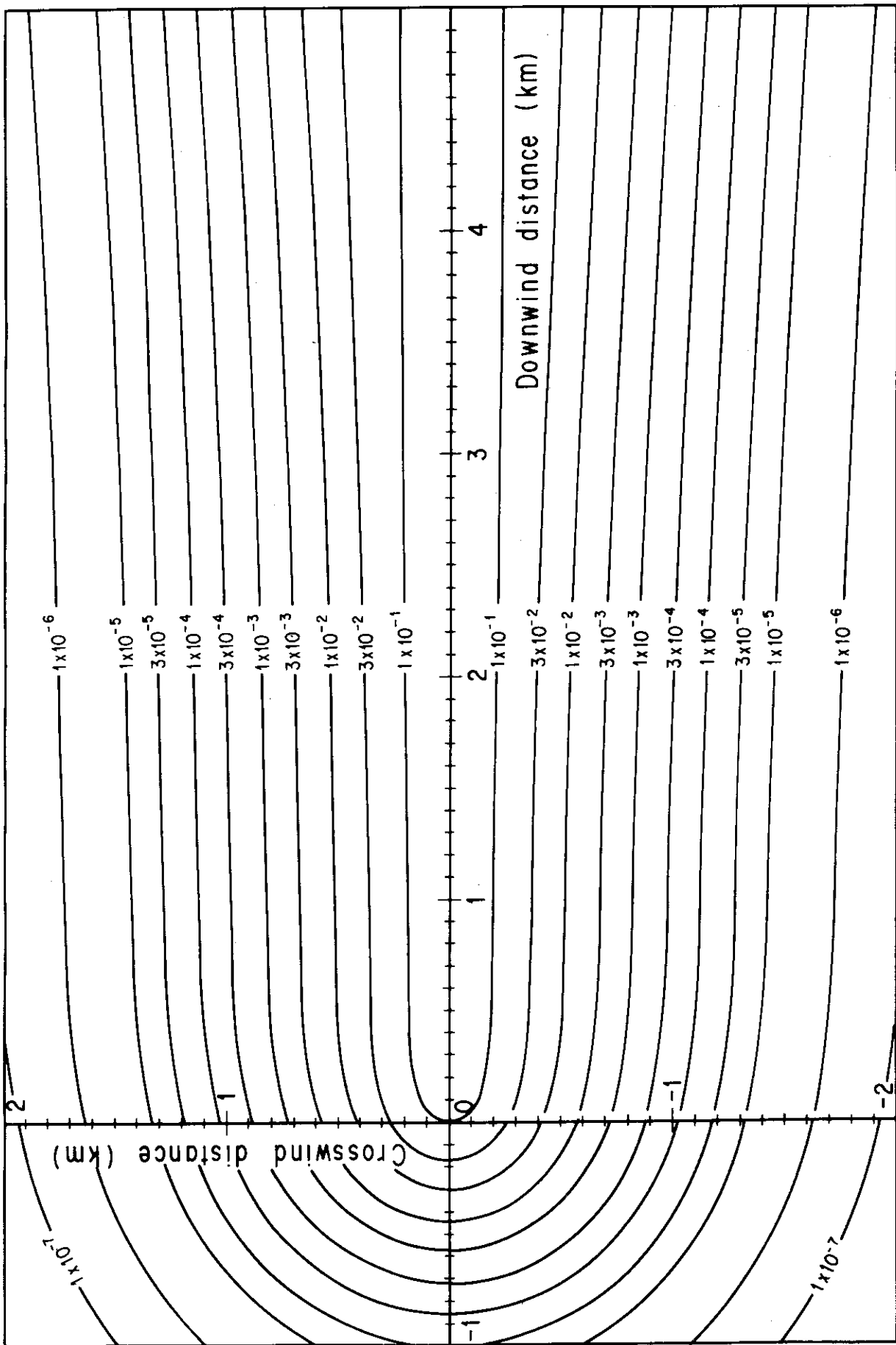


scale : 1 / 50000

Fig. 4-13-4 (B) Isopleths of surface air absorbed dose rate

Q : 1 GBq/h Stack height : 200m
 F : 1 MeV/dis Stability : D
 U : 1 m/s

unit : nGy / h

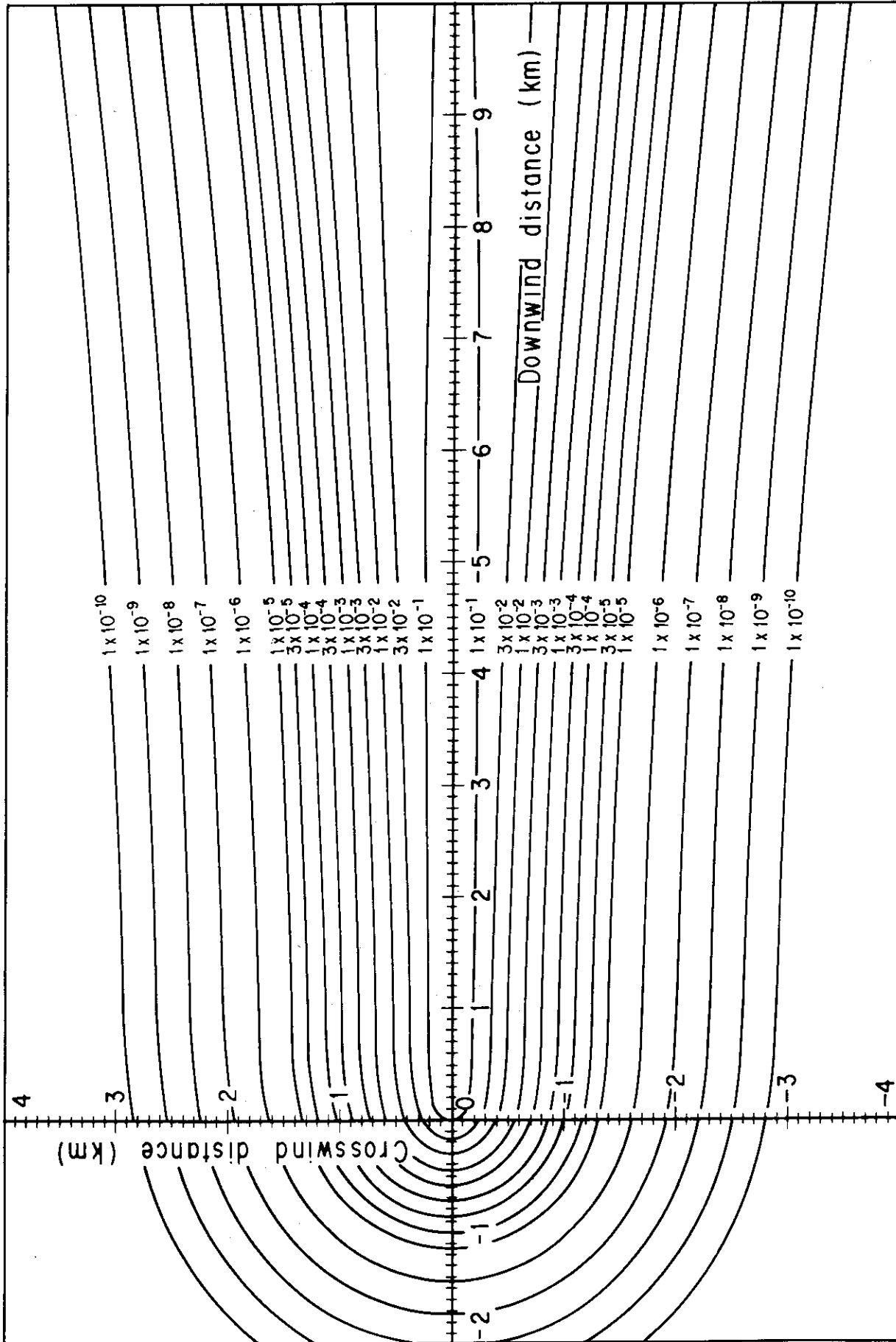


scale : 1 / 25000

Fig. 4-13-5 (A) Isopleths of surface air absorbed dose rate

Q : 1 GBq/h Stack height : 200 m
 E : 1 MeV/dis Stability : E
 U : 1 m/s

unit : nGy / h

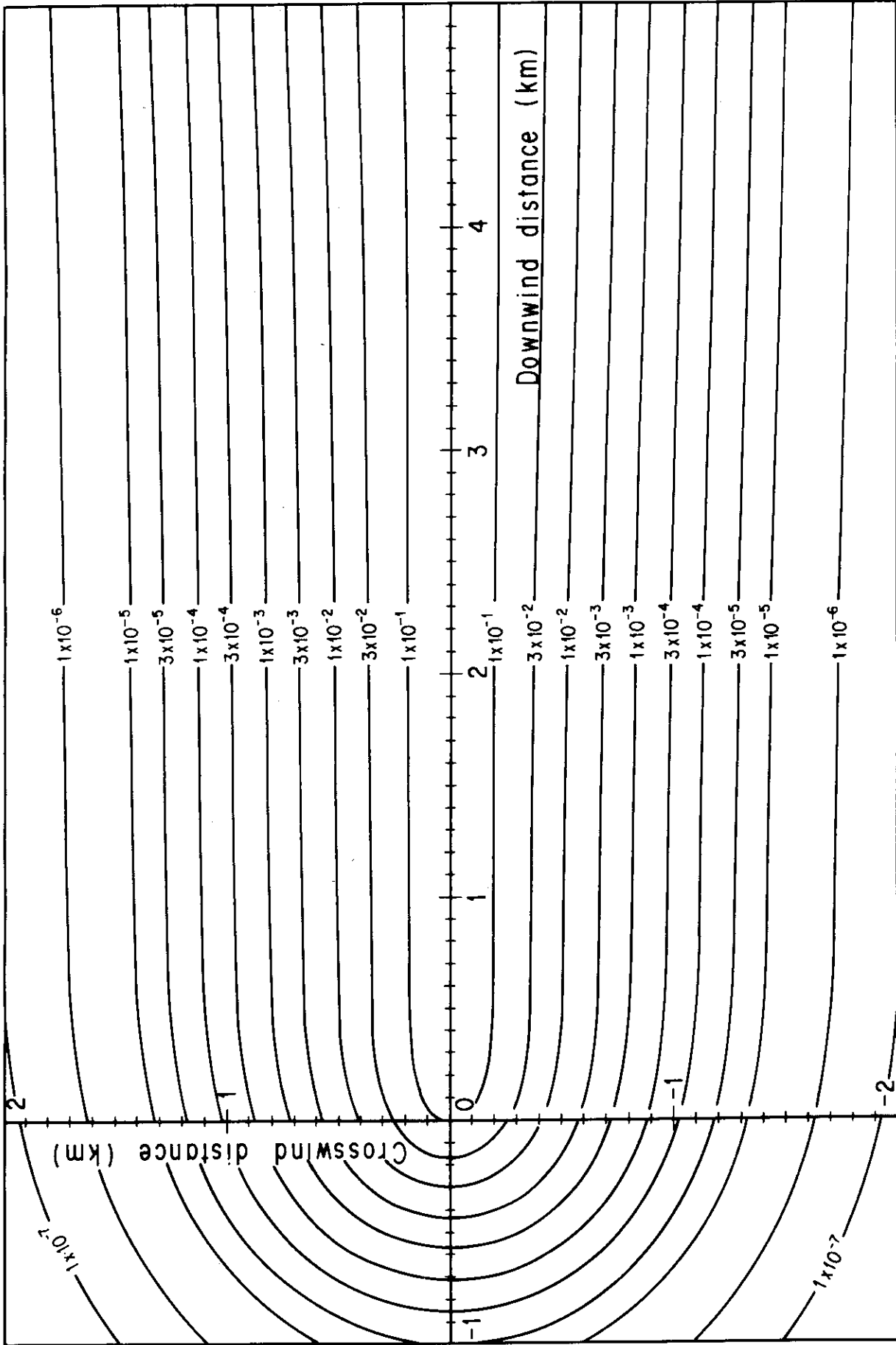


Q : 1 GBq/h Stack height : 200m
 E : 1 MeV/dis Stability : E
 U : 1 m/s

scale : 1 / 50000

Fig.4-13-5 (B) Isopleths of surface air absorbed dose rate

unit : nGy / h

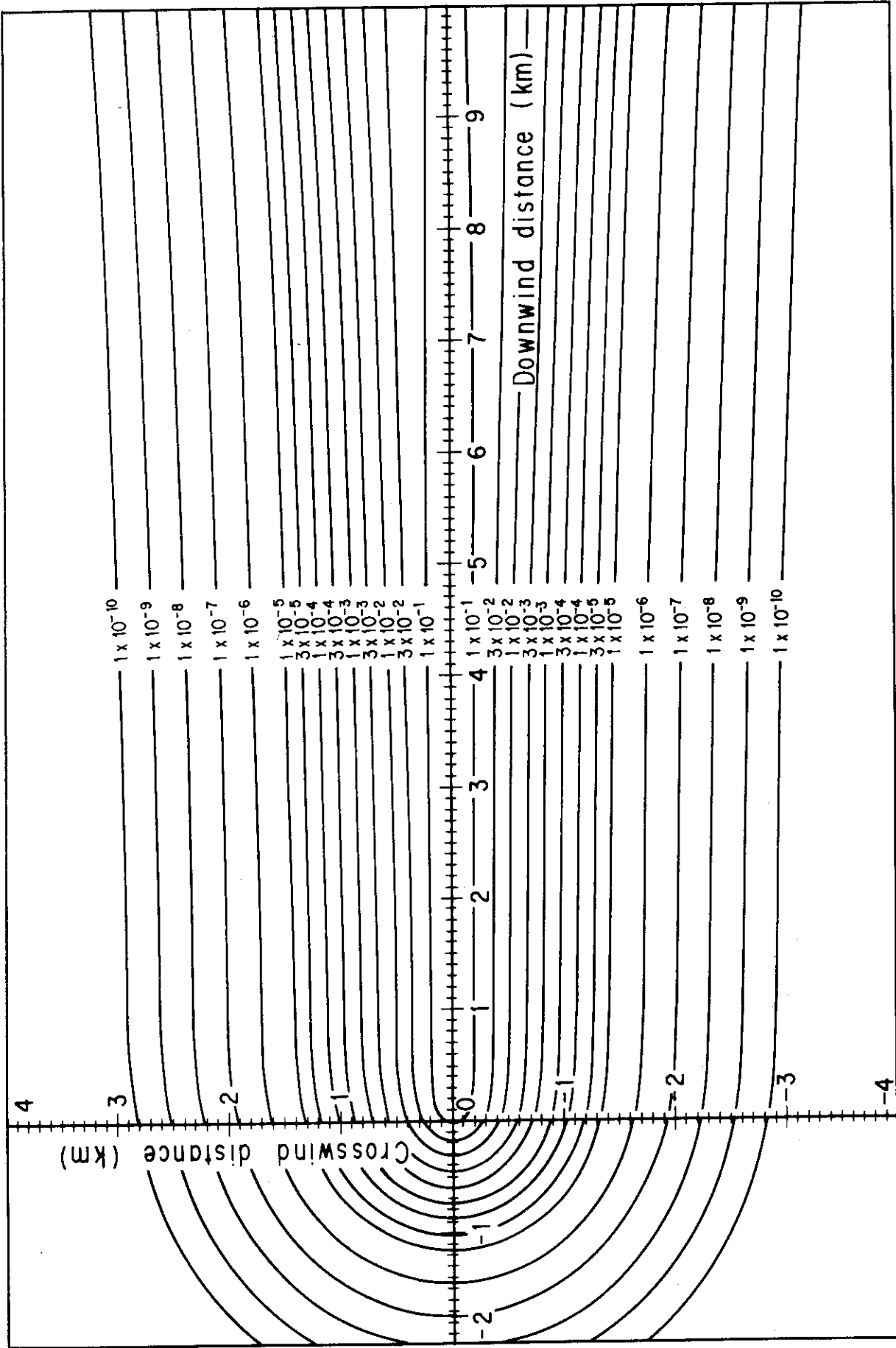


scale : 1 / 25000

Fig. 4-13-6 (A) Isopleths of surface air absorbed dose rate

Q : 1 GBq/h Stack height : 200 m
 E : 1 MeV/dis Stability : F
 U : 1 m/s

unit : nGy / h



scale : 1 / 50000

Fig. 4-13-6 (B) Isopleths of surface air absorbed dose rate

Q : 1 GBq/h Stack height : 200 m
 E : 1 MeV/ds Stability : F
 U : 1 m/s