

**LA DISPERSIONE
Nel resto dell'Europa**

L'arrivo in Italia il 30 aprile

April 26



May 2



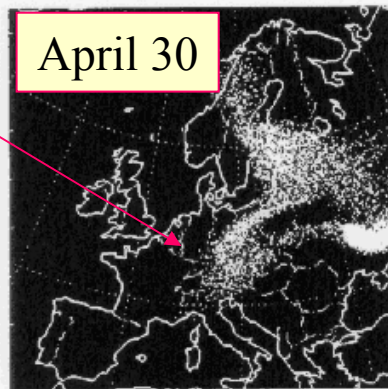
April 28



May 4



April 30



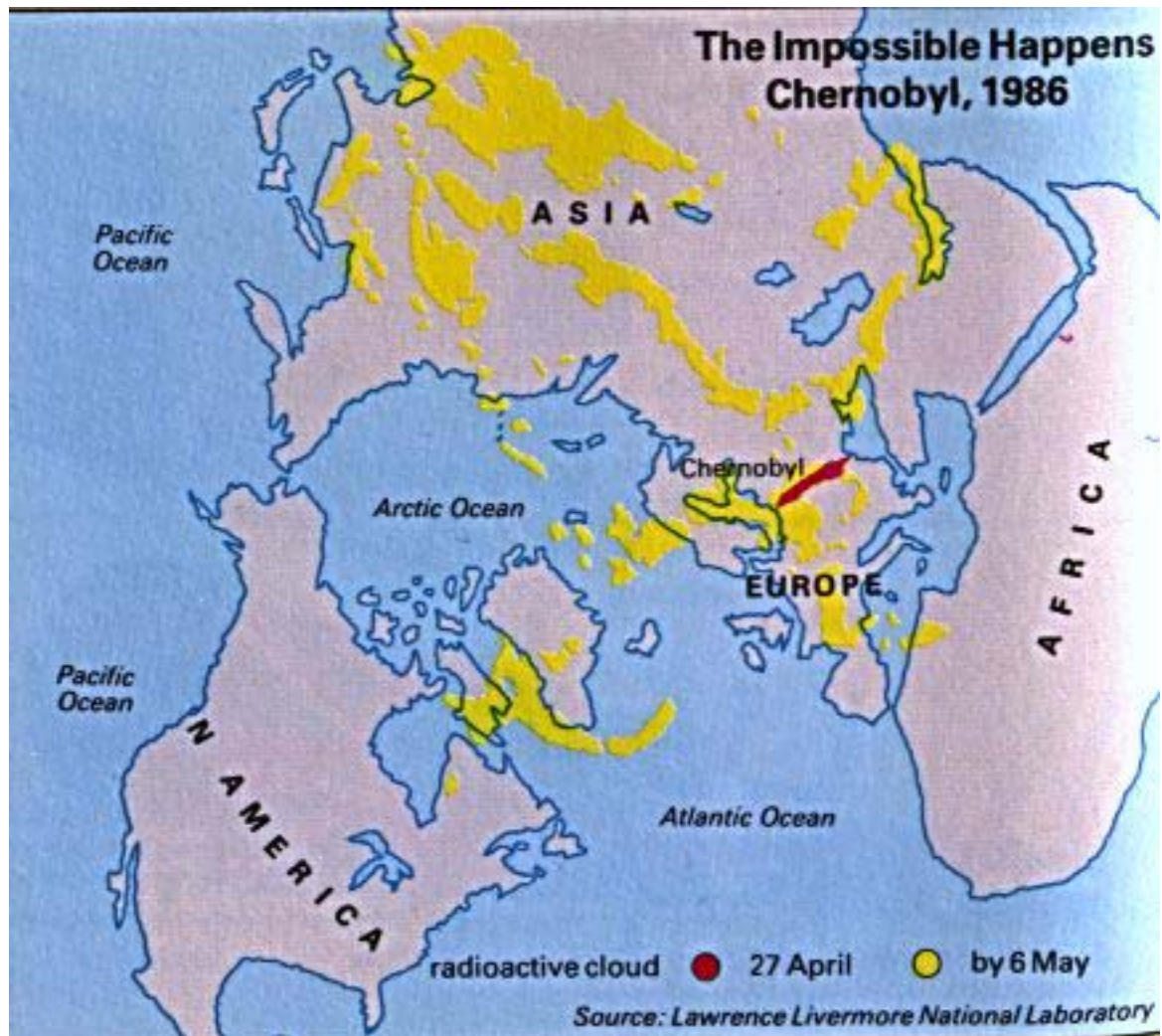
May 6



Credit: ARAC

LA DISPERSIONE su scala planetaria

Solo l'Emisfero Sud rimane indenne da questa contaminazione



DEPOSIZIONE AL SUOLO

Viene presa di riferimento una contaminazione di

- ^{137}Cs at 37 kBq m^{-2} (1 Ci km^{-2})
 - Facilmente misurabile
 - 10 volte il livello del fallout esistente
 - Radiologicamente significativa

Vivendo senza contromisure in una zona con questa contaminazione, nel corso del primo anno si assorbe una dose di 1 mSv.

LA DEPOSIZIONE DEI RADIONUCLIDI

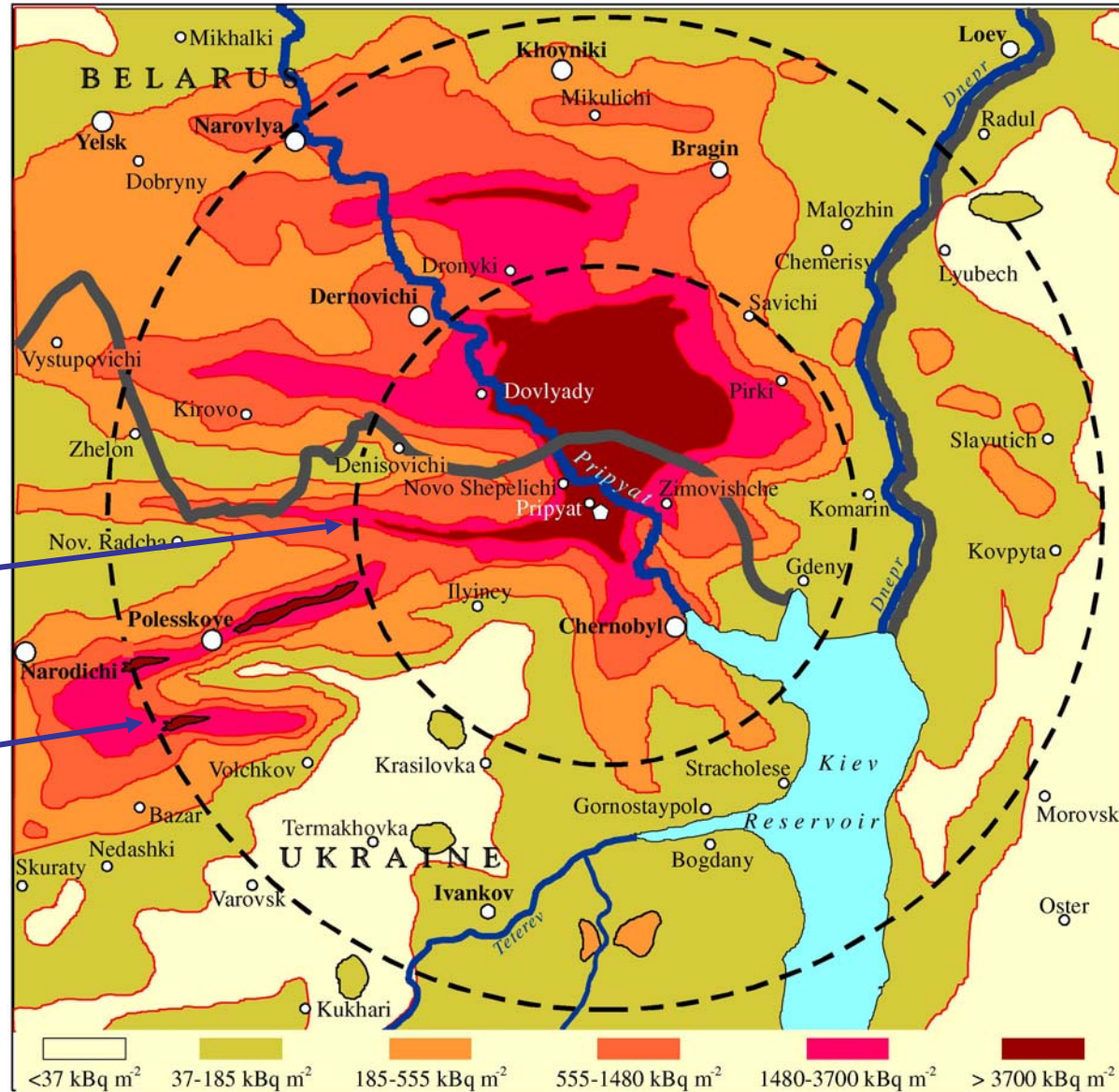
37 KBq/m² => 1mSv/anno

Intorno a Chernobyl

¹³⁷Cs
⁵⁵

30 Km

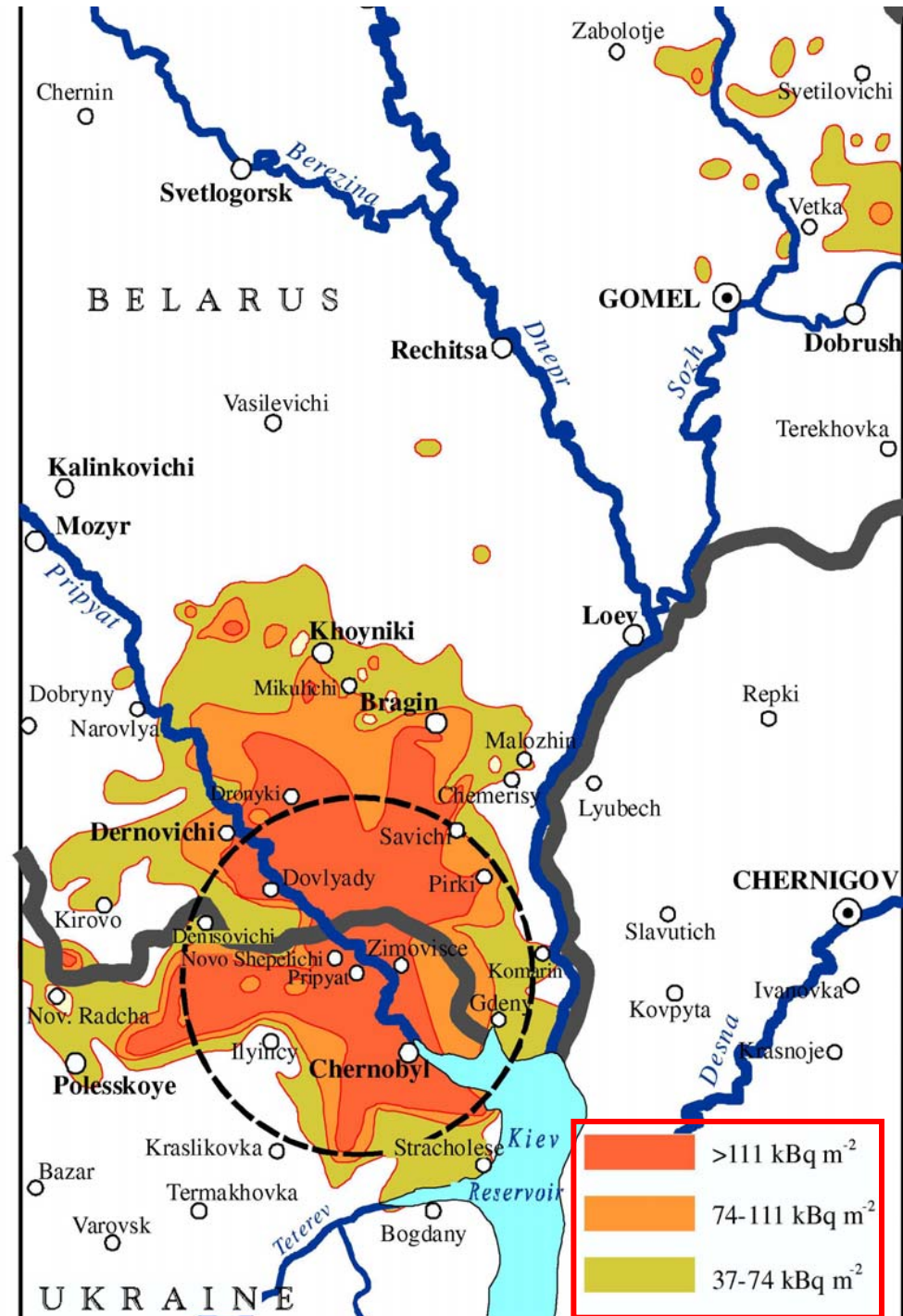
60 Km



Deposizione

^{90}Sr

La deposizione di ^{90}Sr e ^{239}Pu ha interessato soprattutto le zone vicine alla centrale; le zone con contaminazione da plutonio superiore a 4 kBq m^{-2} si trovano entro i **30-km** nelle aree di **Gomel, Mogilev e Briansk.**



Deposizione

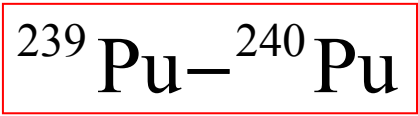


Figure IX. Surface ground deposition of plutonium-239 and plutonium-240 released in the Chernobyl accident at levels exceeding 3.7 kBq m^{-2} [1].

The three main spots of contamination have been called the **Central**, **Bryansk-Belarus**, and **Kaluga-Tula-Orel** spots. The Central spot was formed during the initial, active stage of the release predominantly to the West and North-west. Ground depositions of ^{137}Cs of over 40 kBq/m^2 covered large areas of the Northern part of Ukraine and of the Southern part of Belarus.

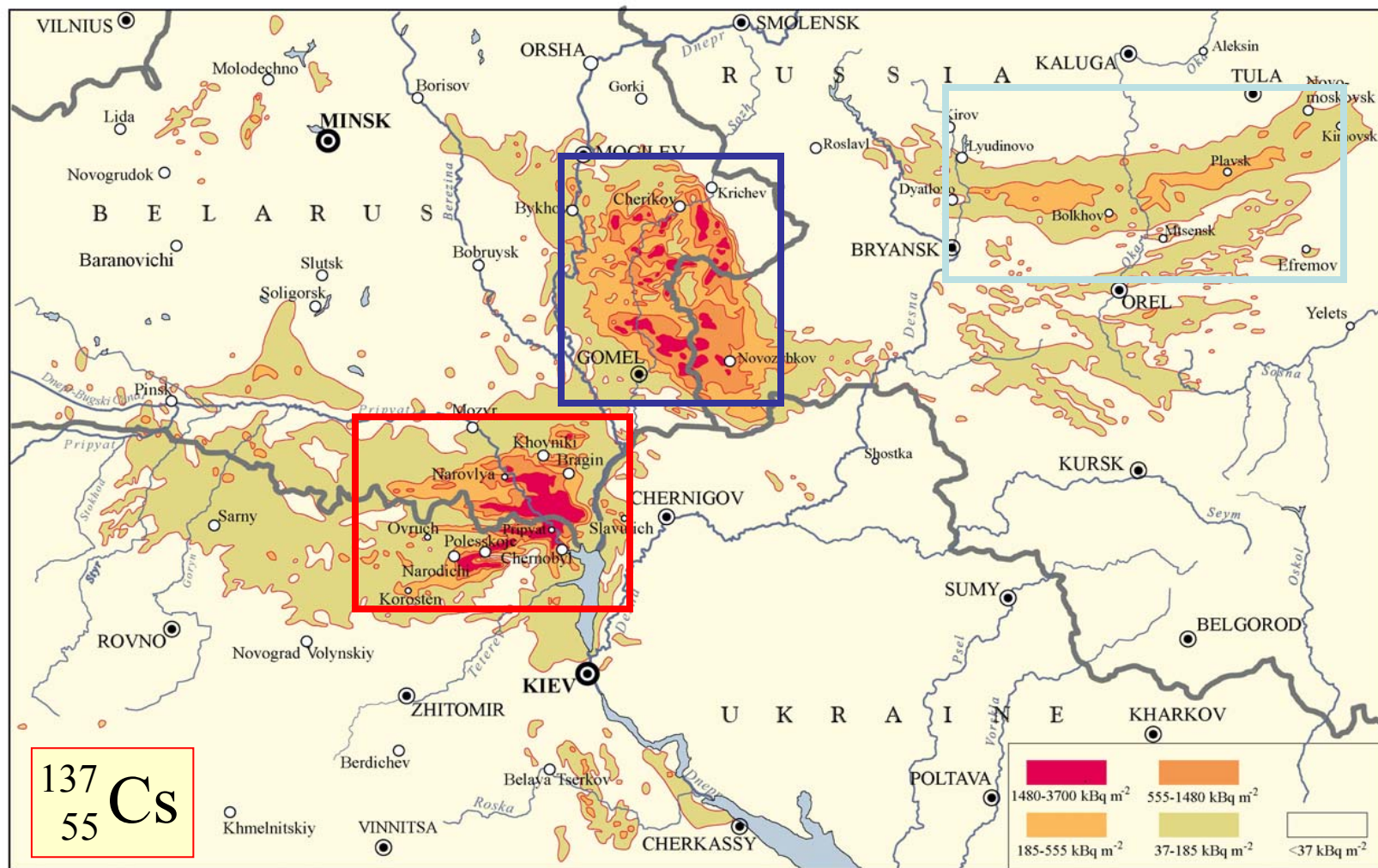


Figure VI. Surface ground deposition of caesium-137 released in the Chernobyl accident [11, 13].

The three main spots of contamination have been called the **Central**, **Bryansk-Belarus**, and **Kaluga-Tula-Orel** spots.

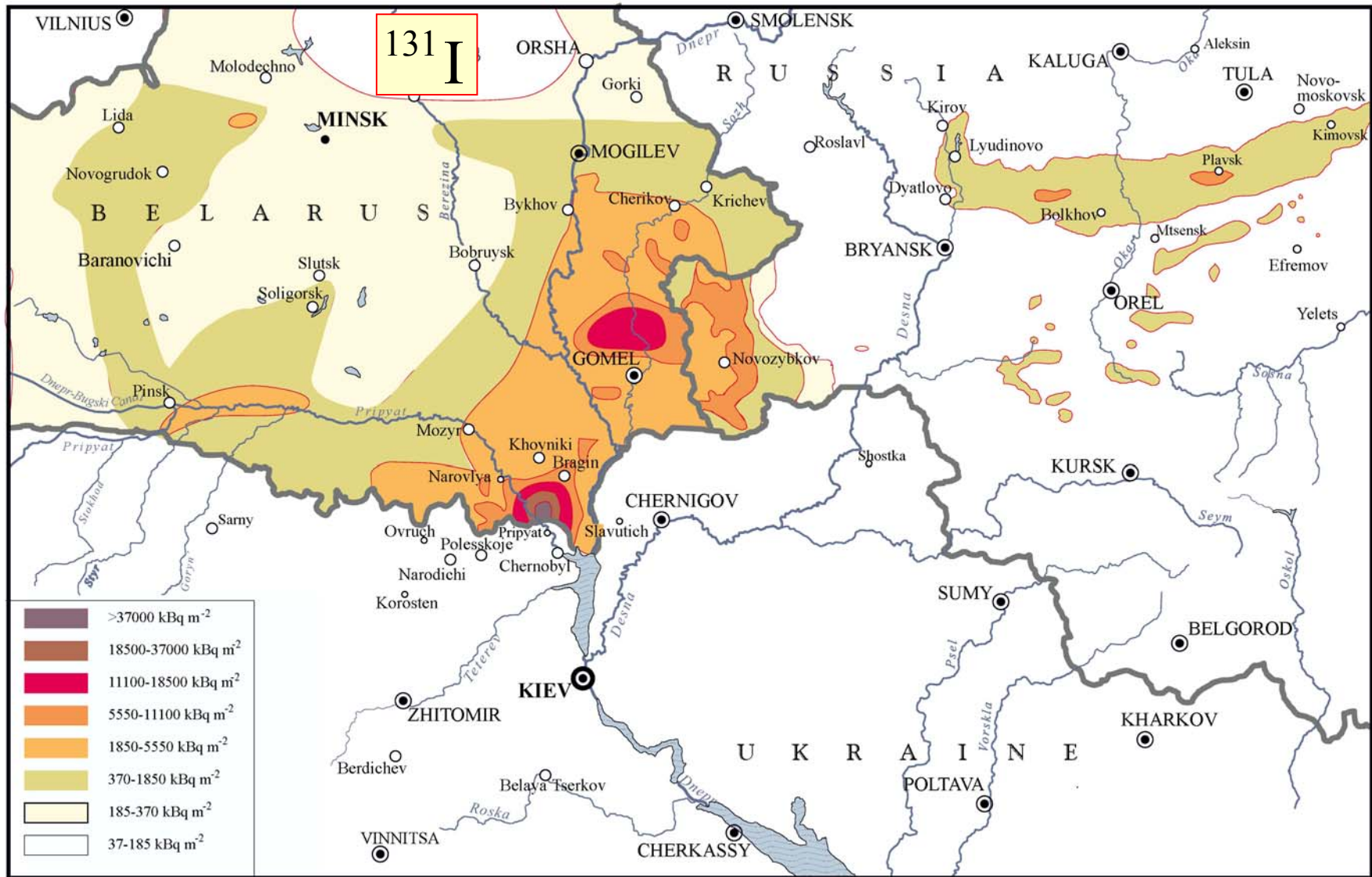
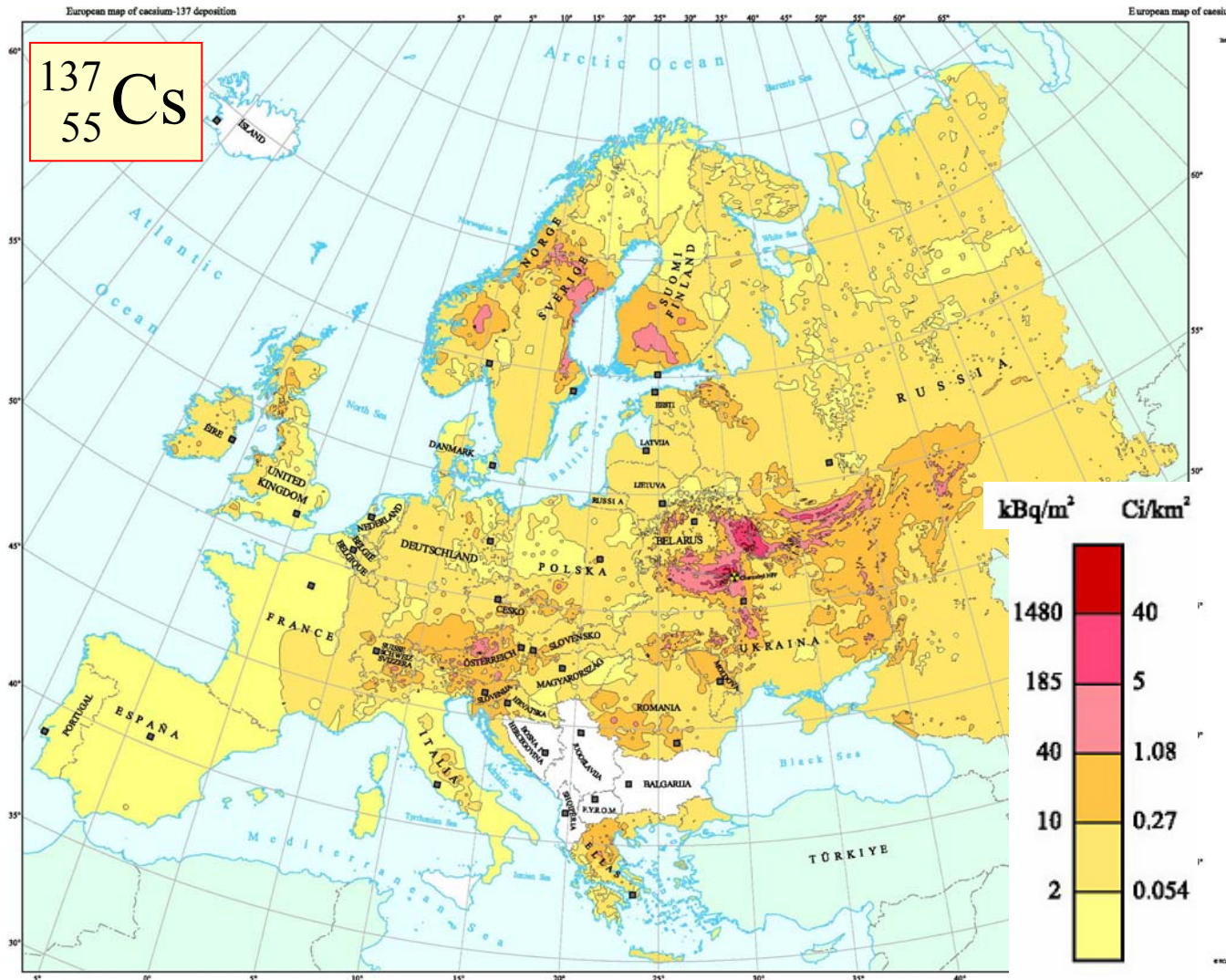


Figure X. Estimated surface ground deposition in Belarus and western Russia of iodine-131 released in the Chernobyl accident [B25, P19].

Most countries in Europe experienced some deposition of radionuclides, mainly ^{137}Cs and ^{134}Cs , as the plume passed over the country. In **Austria, Eastern and Southern Switzerland, parts of Southern Germany and Scandinavia, where the passage of the plume coincided with rainfall, the total deposition from the Chernobyl release was greater (exceeding 37 kBq m^{-2} , with an extensive deposition in a $2\text{-}4 \text{ km}^2$ area in Sweden within the commune of Gävle (exceeding 185 kBq m^{-2})**

Figure XI. Surface ground deposition of caesium-137 released in Europe after the Chernobyl accident [D13].



than that experienced by most other countries, whereas **Spain, France and Portugal experienced the least deposition.** For example, the estimated average depositions of ^{137}Cs in the provinces of **Upper Austria, Salzburg and Carinthia in Austria were 59, 46 and 33 kBq/m^2 respectively,** hereas the average ^{137}Cs deposition in **Portugal was 0.02 kBq/m^2**

Areas (km²) contaminated at >37 kBq m⁻² (>1Ci km⁻²)

• Russian Federation	57,900
• Belarus	46,500
• Ukraine	41,900
• Sweden	12,000
• Finland	11,500
• Austria	8,600
• Norway	5,200
• Bulgaria	4,800
• Switzerland	1,300
• Greece	1,200
• Slovenia	300
• Italy	300
• Republic of Moldava	60

L'ESPOSIZIONE DELLA POPOLAZIONE

La popolazione esposta può essere suddivisa in quattro categorie

- (1) Lo staff della centrale nucleare e i lavoratori che hanno partecipato alle operazioni di decontaminazione (i cosiddetti “liquidatori”)
- (2) i residenti nelle vicinanze che furono evacuati dalla zona dei 30-km durante le prime settimane dall'incidente
- (3) la popolazione dell'ex-Unione Sovietica, inclusi i residenti delle aree contaminate: circa 5 milioni
- (4) la popolazione nei Paesi fuori dall'ex-Union Sovietica

Lo staff della centrale

presenti sul posto

arrivati dopo

Table 10
Staff on site and emergency workers in initial hours of the accident
 [K23]

566
emergency
workers

491

<i>Professional group</i>	<i>Accident witnesses</i>	<i>Emergency workers (at 8 a.m. on 26 April 1986)</i>
Staff of the power plant (Units 1, 2, 3 and 4)	176	374 ^c
Construction workers at Units 5 and 6	268	-
Firemen	14 ^a , 10 ^b	69
Guards	23	113
Staff of the local medical facility	-	10

Explosion at 1.24 hr

a Arrived on the site of the accident at 1.27 a.m.

b Arrived on the site of the accident at 1.35 a.m.

c Excluding the accident victims, the numbers of whom are given in Table 11.