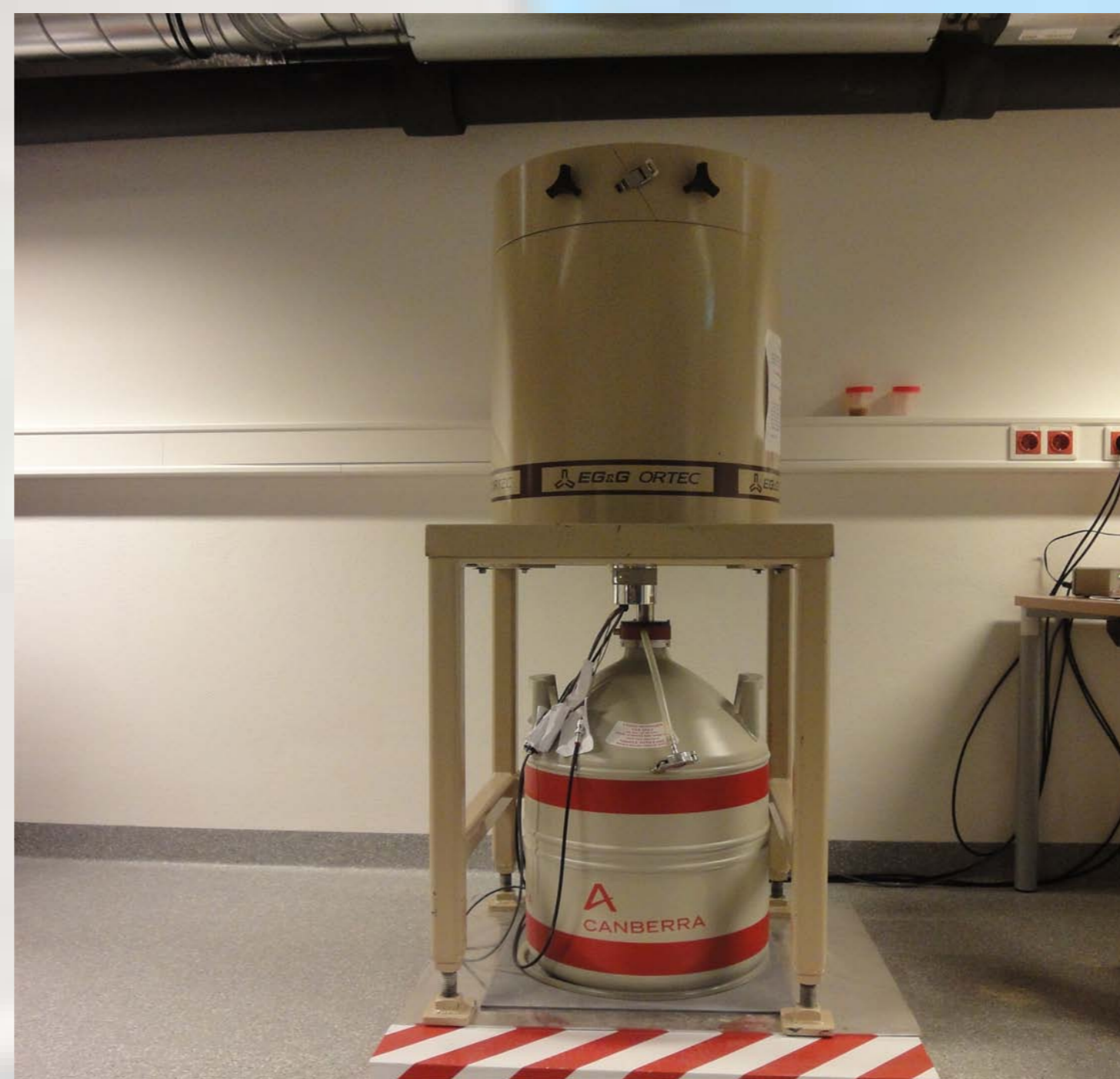


Low-level gamma spectroscopy

DETECTOR DATA:

- Canberra GC5020
- Standard electrode coaxial Ge
- Rel. Efficiency: 50%
- Shielding: Ortec HPLBS1
 - Steel - lead - tin - copper



AUTHORS:

- Andreas Musilek
musilek@ati.ac.at
- Georg Steinhauser
georg.steinhauser@ati.ac.at
- Dieter Hainz
dhainz@ati.ac.at

TU-Vienna, Atominstitut
Stadionallee 2, 1020 Vienna, Austria

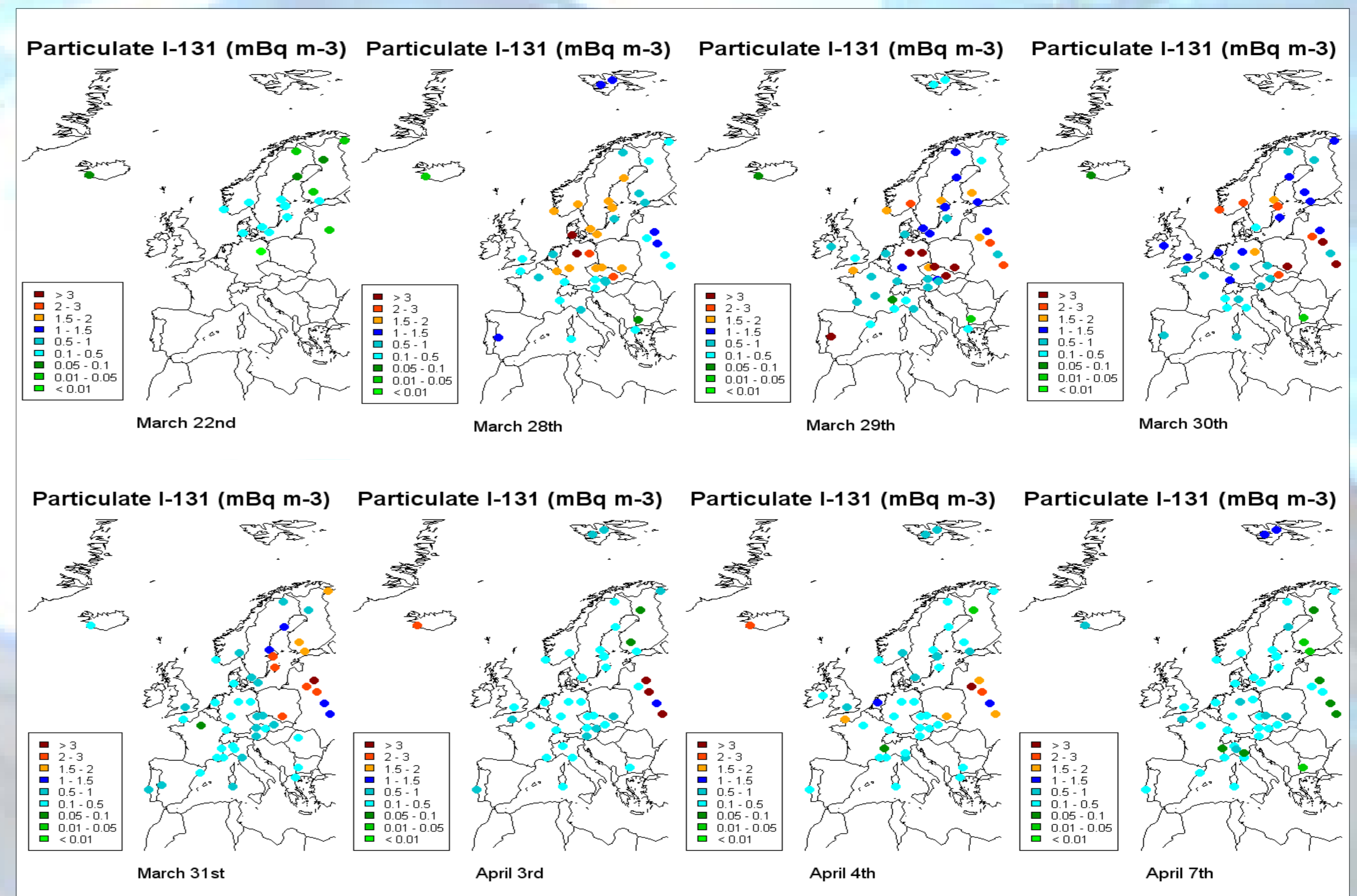
Measurements of air samples in Austria after the Fukushima accident

Introduction

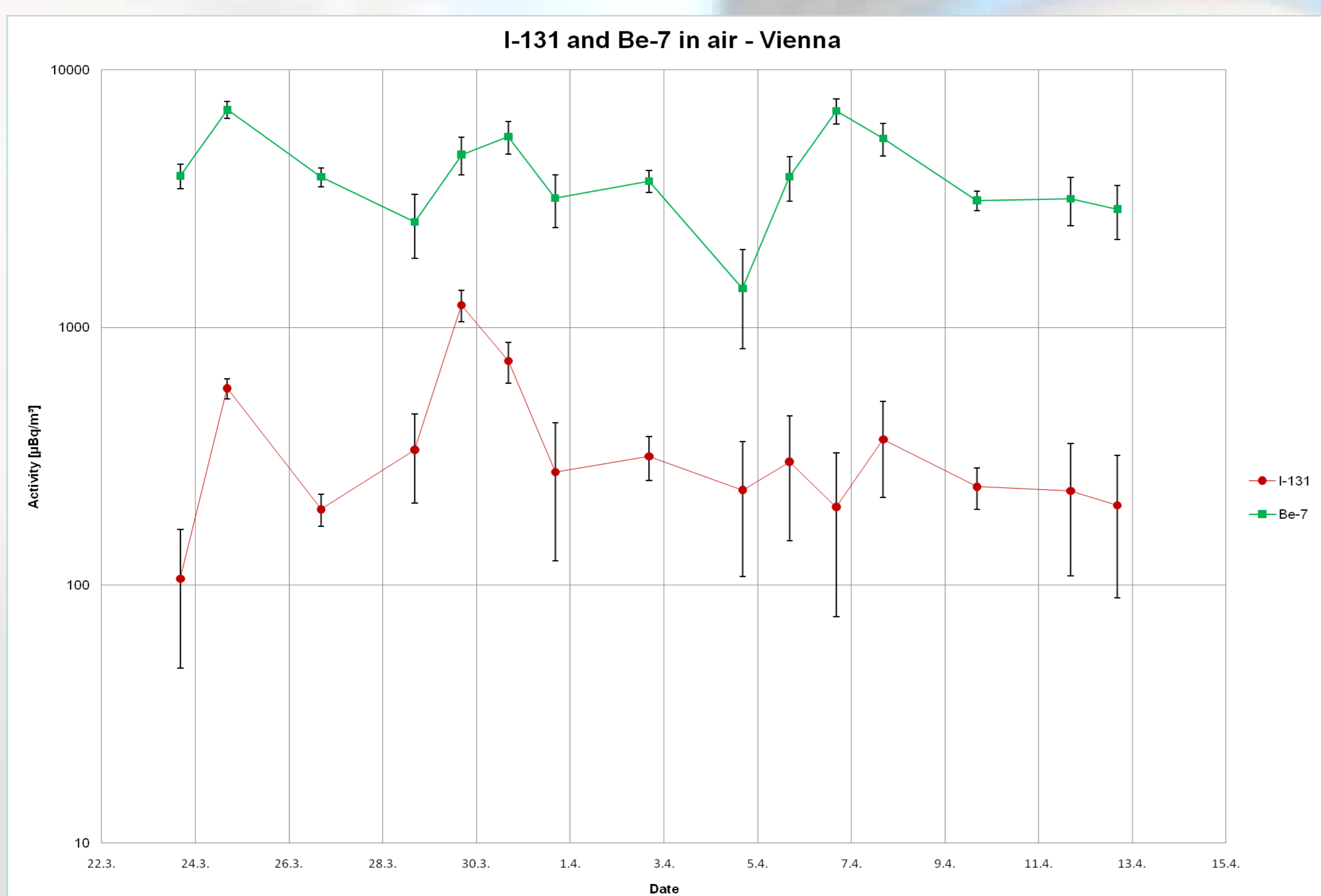
Following the earthquake and tsunami in Japan on 11 March 2011 and the resulting damages at the nuclear power plants in Fukushima, environmental samples were taken in Austria to determine the effects in Middle Europe, about 10 000 km away from Fukushima. Of course, the radiation-level in Austria resulting from this accident is very low, but can be measured with low-level gamma spectroscopy. Air samples were analyzed to show which fission products can be verified and to calculate the concentration of their activities. The series of measurements started 2 weeks after the accident and were stopped 3 weeks later.

Discussion

The plume of the Fukushima Reactor Accident was detectable in Austria. Particulate iodine-131 was sampled onto glass fiber filters and quantified by applying low-level-spectrometry. The maximum concentrations were observed on 29 March 2011 (1.2mBq/m³). On a European scale, this is in very good agreement with the results of other stations. In a joint study [1], we could show that the Fukushima plume entered European air space in a relatively narrow channel and dispersed over Europe until complete decay of the short-lived radionuclides.



Taken from [1]



Conclusion

The activity levels of artificial radionuclides in Europe following the Fukushima Reactor Accident were approximately 10 000 times lower than after the Chernobyl accident. The activity concentrations of natural radionuclides such as Be-7 were roughly 10 times higher than I-131 during March and April 2011. According to these results, the health hazards of the Fukushima Reactor Accident were negligible in Europe.

[1] O. Masson et al., Tracking of airborne radionuclides from the damaged Fukushima Daiichi nuclear reactors by European networks. Environmental Science and Technology, in print.