

## Objectives

1. Sr-90 Monitoring in sediment of Danube river
2. Awareness of finding even traces of radionuclides
3. Reveal that Tschernobyl still has impact on Europe's radioecology

## Introduction

This work is part of the „Joint Danube Survey 3 (JDS 3)“, a project by the International Commission for the protection of the Danube River (ICPDR). We investigated the amount of radiostrontium (Sr-90) in the sediments of the Danube river by radiochemical dissolving from the geologic matrix, separation from other radionuclides using strontium-specific resins by Eichrom and quantitate measurement with liquid scintillation counting.



Figure 1: Map of Europe

## Methods

- ▶ preliminary tests for detecting how much strontium can be dissolved from the geologic matrix
  - ▷ ICP-MS (Interference with Fe) ☹
  - ▷ Neutron activation analysis (unclear spectra)☹
  - ▷ TXRF- Measurements ☹
- ▶ Chemical processing of the samples
- ▶ separation of Sr-90 with Sr-specific resins by Eichrom
- ▶ Measurement with LSC



## Conclusion

- ▶ In general low activity of less than 10 Bq/kg
- ▶ Highest activity was found in
  - ▷ mainly in upper half of Danube river
  - ▷ Asten-Germany km 2120
  - ▷ Moson-Hungary km 1790
  - ▷ Dravski Kut-Croatia km 1384
- ▶ First Measurement of this kind, unfortunately no former results for comparison

## Discussion

- ▶ Although low amounts of Sr-90 in comparison to Cs-137 and I-131 were released, it can be still be detected
- ▶ Nevertheless it matters since living organisms incorporate Sr-90 instead of calcium
- ▶ But because of costly analysis methods, only worth the effort in highly contaminated regions

## Results

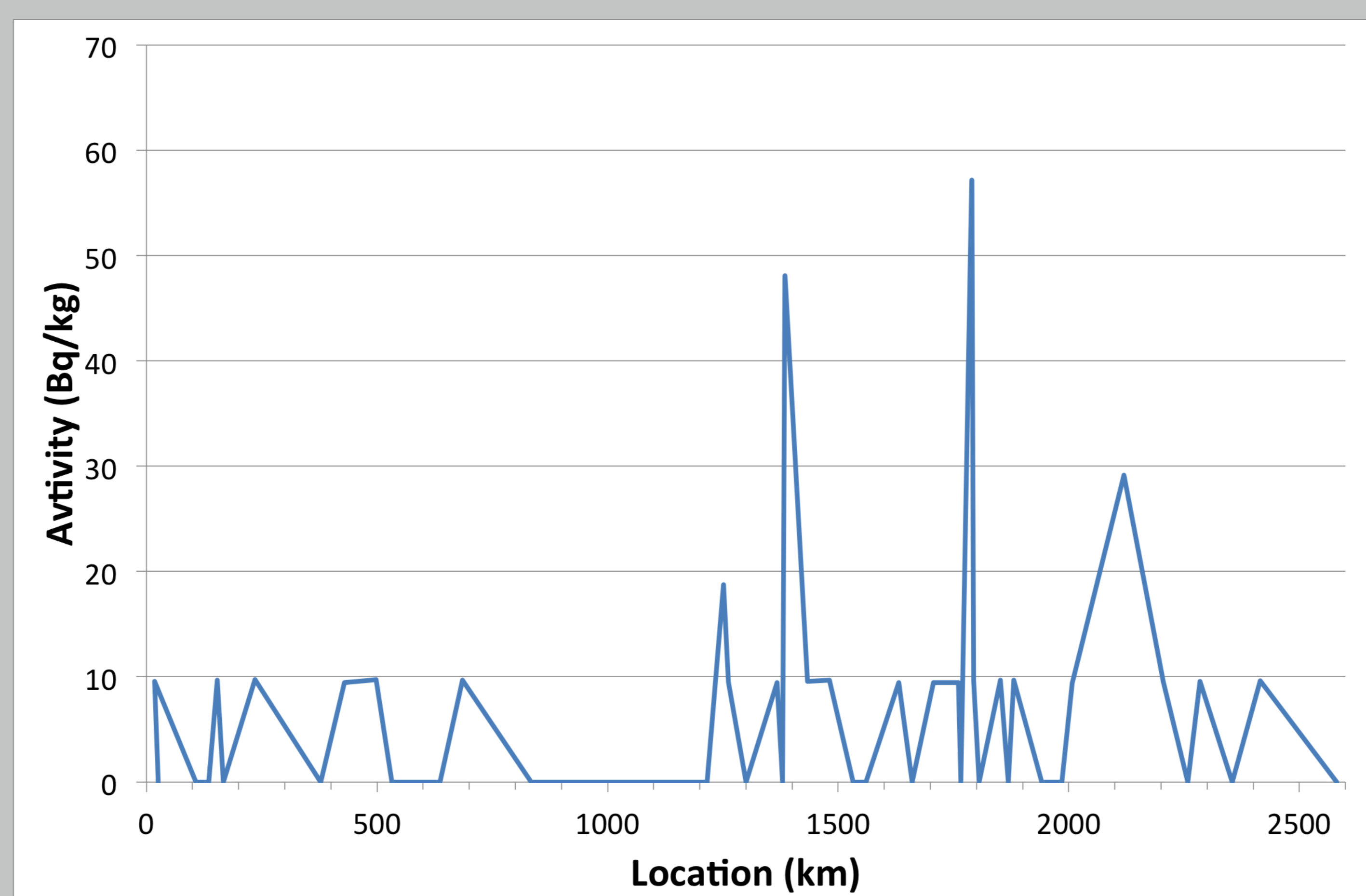


Figure 2: Activity along the Danube

## Acknowledgments and References

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