IRSN
INSTITUT
DE RADIOPROTECTION
ET DE SÛRETÉ NUCLÉAIRE

Faire avancer la sûreté nucléaire

NERIS WEBINAR ON CHERNOBYL FIRES

Collective work, presented by
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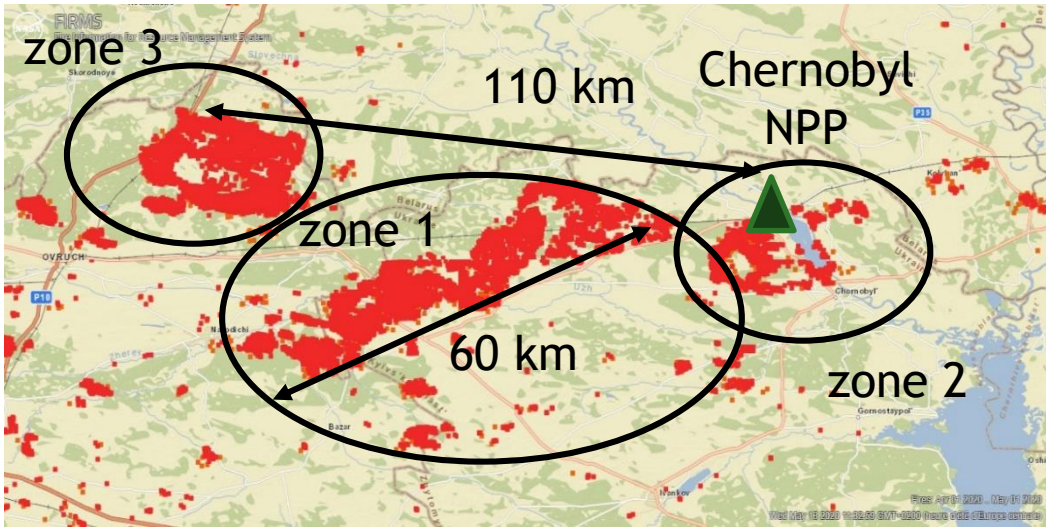
28 May 2020

Fire zones between April 2 and April 25

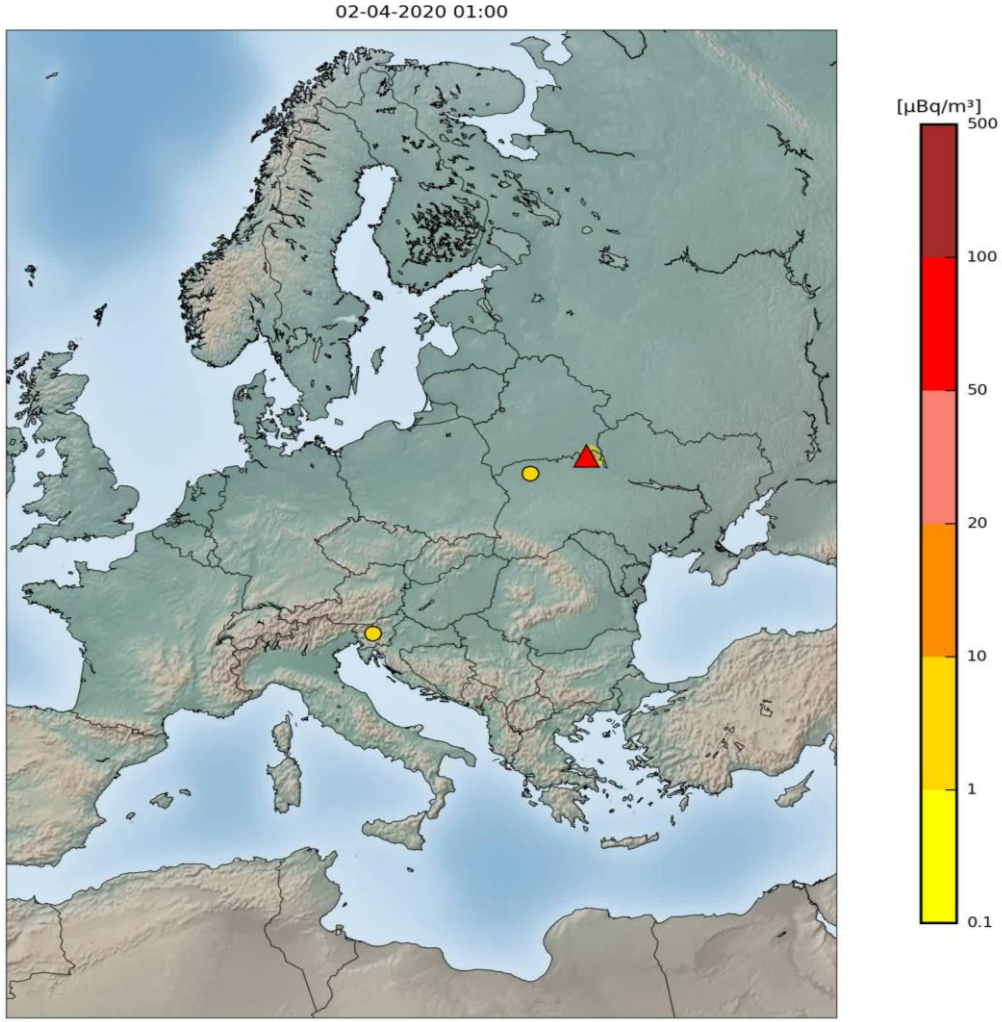


April 6: IRSN set up its emergency organization level 1

Key challenges

- Tracking the evolution of forest fires
- Measurements
  - Gathering measurements
  - Collect air sampling filters that are part of the French monitoring network (OPERA)
- Modeling
  - Forecast a potential arrival of the plume in France
  - Source term assessment (magnitude, duration)
    - Emission factors, contaminated areas
    - Inverse modeling techniques (deterministic, Bayesian)
- Dosimetric impact
  - Fire-fighters
  - Inhabitants of Kiev and south-east France

Plume reconstruction by combining atmospheric transport model and inverse modeling techniques



- **Low concentration levels of ^{137}Cs measured on the European scale**
  - Detections in Ukraine, Belarus, Russia, Poland, Czech Republic, Austria, Greece, Norway
  - France

    Measurements in south-east France reflect a weak marking linked to air masses coming from Ukraine
- **Measurements values are consistent with modeling results**

< Measurement under detection limit

Measurement averaged on air sampling period

Outcome and perspectives

Outcome

- Around 650 measurements available
  - Data exchanged through the Ro5 network
  - CTBTO measurements (SCK-CEN / IRSN collaboration)
  - Ukrainian measurements (Ecocenter and Ukrainian Hydrometeorological Institute)
  - Belarus measurements (Republican Center for Hydrometeorology, Radioactive Contamination Control and Environmental Monitoring)
- IRSN modeling results (source term) are consistent with other institutes
- 5 information notes available on IRSN website (4 in English)
  - https://www.irsn.fr/EN/newsroom/News/Documents/IRSN_Information-Report_Fires-in-Ukraine-in-the-Exclusion-Zone-around-chernobyl-NPP_15042020.pdf
  - https://www.irsn.fr/EN/newsroom/News/Documents/IRSN_Information-Report_Fires-in-Ukraine-in-the-Exclusion-Zone-around-chernobyl-NPP_17042020.pdf
  - https://www.irsn.fr/EN/newsroom/News/Documents/IRSN_Information-Report_Fires-in-Ukraine-in-the-Exclusion-Zone-around-chernobyl-NPP_24042020.pdf
  - https://www.irsn.fr/EN/newsroom/News/Documents/IRSN_Information-Report_Fires-in-Ukraine-in-the-Exclusion-Zone-around-chernobyl-NPP_05052020.pdf

Current and future collaborations

- Sharing IRSN source term and dispersion model results with Environment Canada
- Comparison between IRSN and SCK-CEN inverse modeling approaches