

**EMRAS - Theme 2**  
**Remediation of Sites with**  
**Radioactive Residues**

**Urban Remediation Working Group**

**21-25 November 2005**

**Vienna**

# Objective of the Working Group

Testing and improving the prediction of dose rates and doses to humans for urban areas contaminated with dispersed radionuclides

# Specific Objectives

- Prediction of changes in radionuclide concentrations, dose rates, and doses as a function of location and time
- Identification of the most important pathways for human exposure
- Prediction of the reduction in radionuclide concentrations, dose rates, and doses expected to result from specific countermeasures or remediation efforts

# Progress at this meeting

- Presentation and discussion of a variety of models and modelling approaches for contaminated urban areas
- Presentation and discussion of preliminary model results for District #1 of Pripyat
- Discussion of scenarios for hypothetical situations (deliberate contamination events)
- Joint session with NORM Working Group

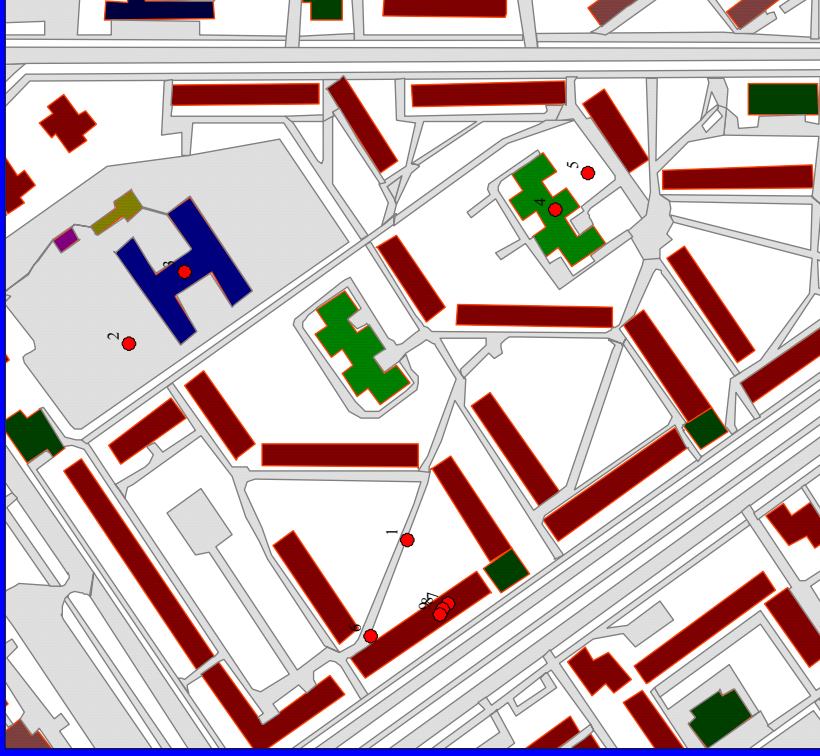
# Discussion of modelling approaches

- Literature survey prepared by Florence Galloway
- Presentations of modelling approaches used in urban areas

# Scenario description for District #1 of Pripyat

- Contaminated urban environment
- Undisturbed (no human activity)
- Time series of dose rates and contaminant concentrations

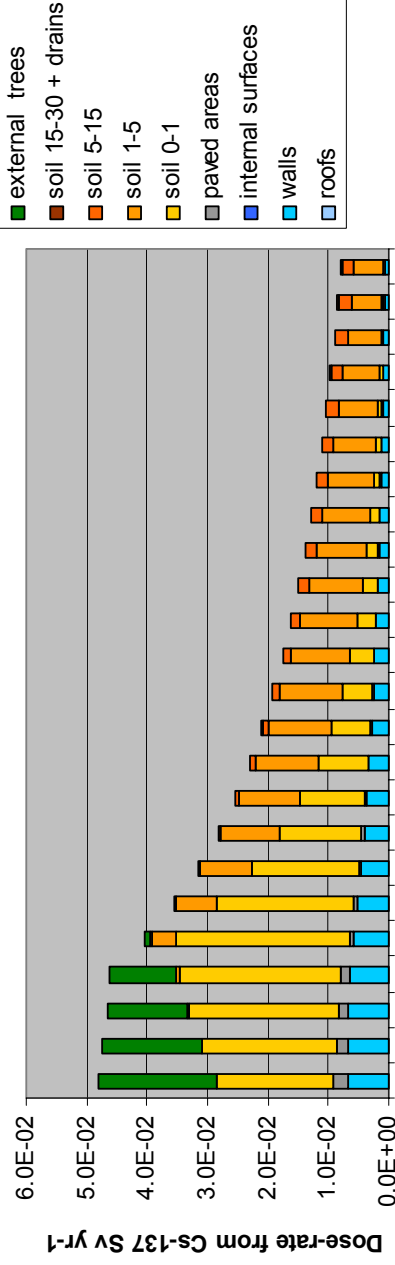
# District #1 of Pripjat



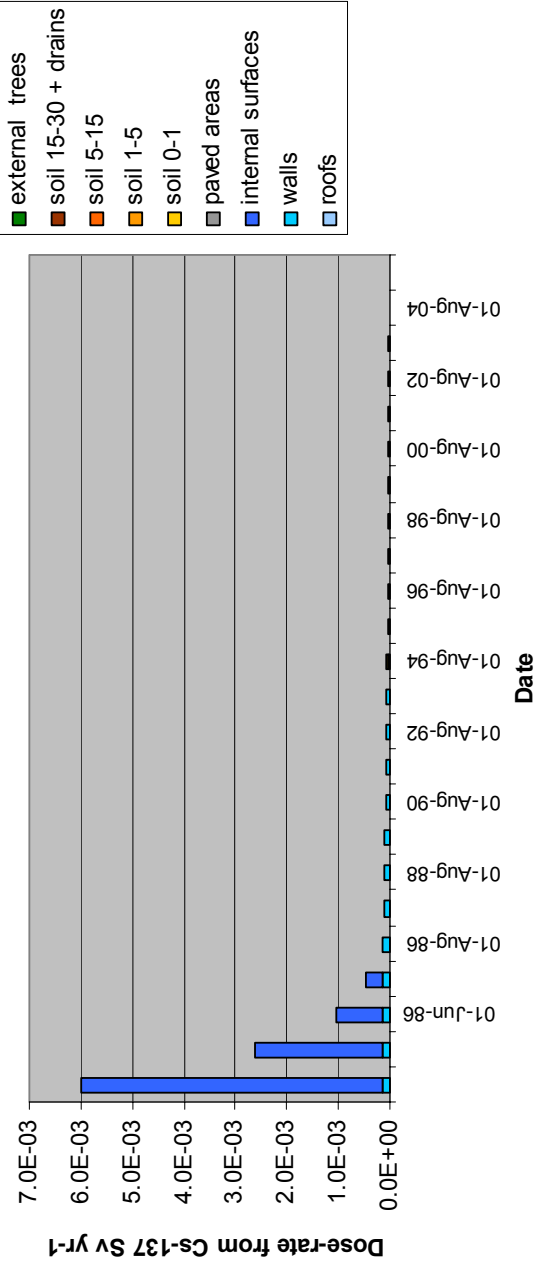
- Nine defined locations
- Four outdoors, corresponding to locations for some measurements
- Five indoors
  - Residential building
  - Schools

# Example output

Outdoor dose-rate: multi-storey environment, low paved med trees



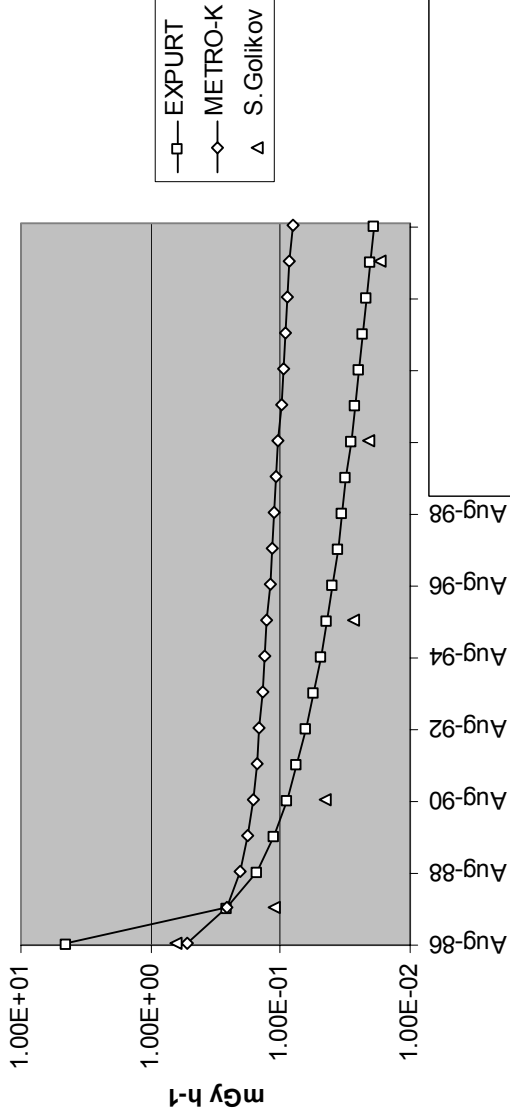
Indoor dose-rate: multi-storey environment, low paved med trees



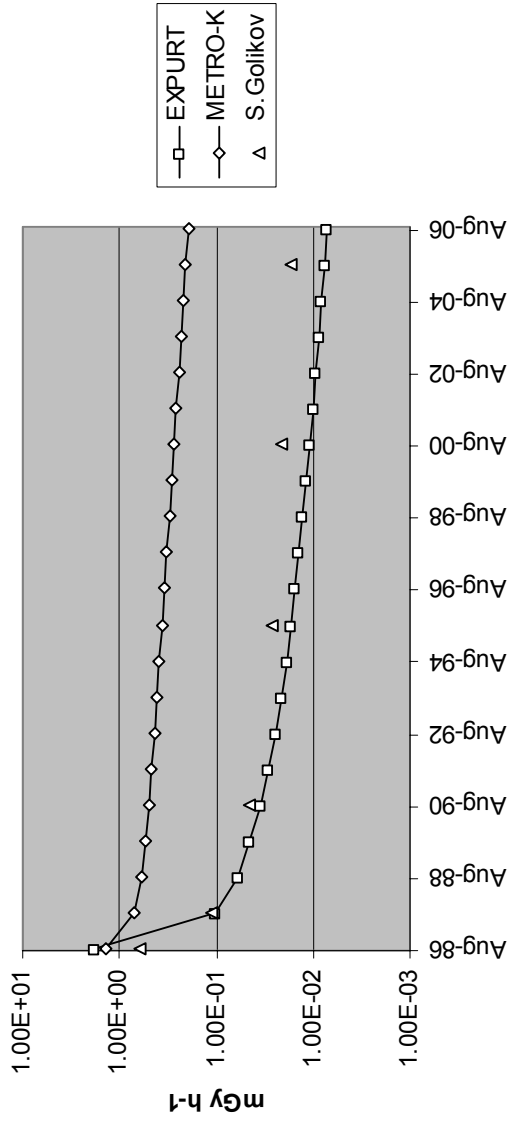


# Preliminary comparison

Location 1



Location 5



# Plans for Pripjat scenario

- Clarify some scenario details
- Predict the effects of selected countermeasures
- Extend calculations to include dose estimates

# Draft scenario for hypothetical situation

- Radiological dispersal device (RDD)
- Starting point: simulated deposition from a dispersion model
- Several representative urban situations (different distributions of urban surfaces)
- Predicted dose rates and doses
  - Without remedial measures
  - With selected remedial measures
- Draft to be distributed in early 2006

# Plans for continuing work

- Distribute final version of Pripyat scenario
- Distribute draft version of RDD scenario
- Model predictions due in May 2006
- Meeting in June or July 2006, in Ukraine
- Begin drafting WG report