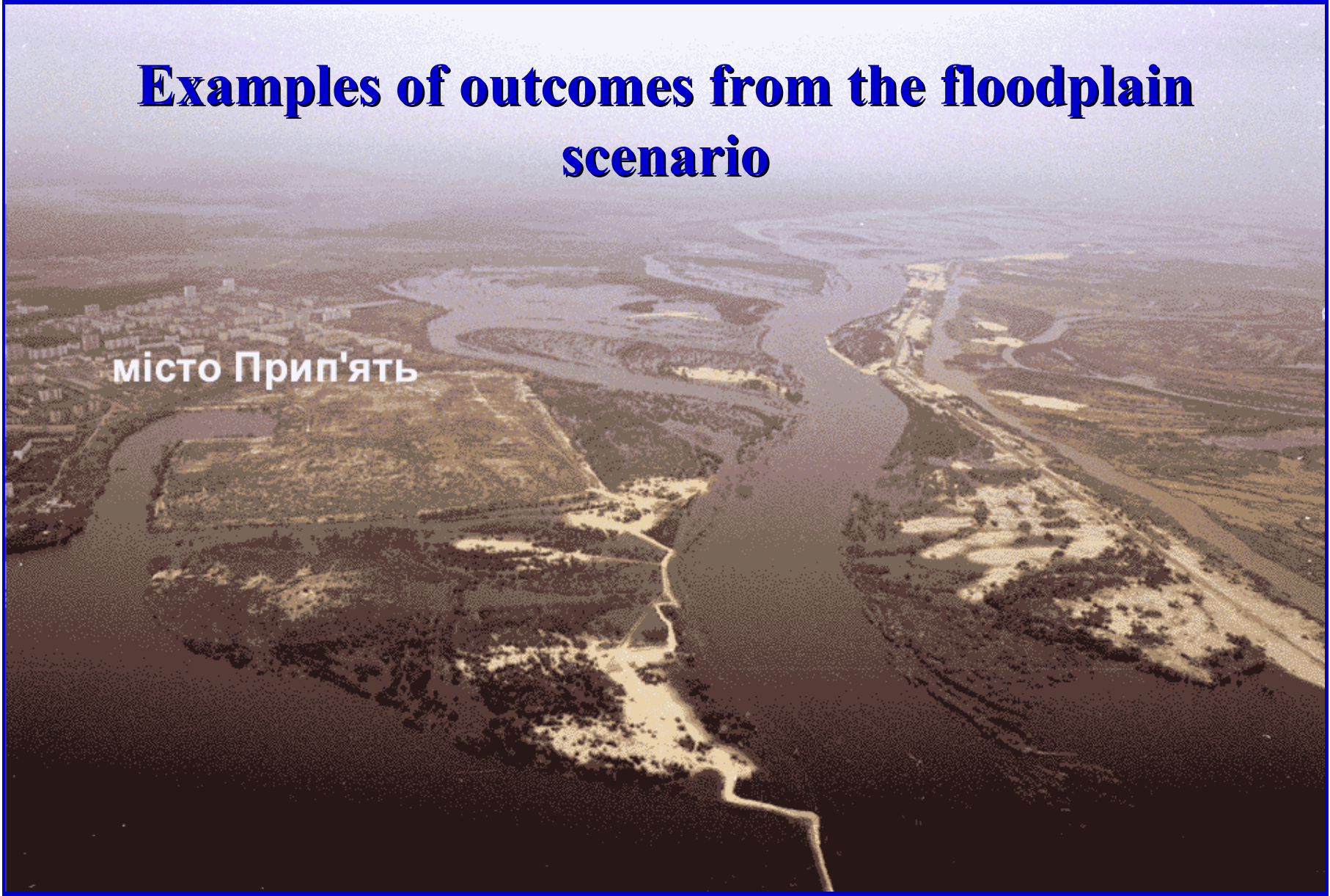
EMRAS
Environmental Modelling for Radiation Safety
Working Group 4
Model validation for radionuclide transport in the aquatic system "Watershed-River" and in estuaries

Meeting November 2005

Scenarios

Scenario	Scenario developer	Models	Priority	Status
Floodplain (Chernobyl)	UHI (Ukraine) Typhoon (Russia)	University of Sevilla (Spain) ENEA (Italy) IMMSP (Ukraine) UHI (Ukraine)	Extreme events.	Exercise concluded
Tritium in river Loire	EDF (France)	IMMSP (Ukraine) ENEA (Italy) IRSN (France) EDF (France)	Radionuclides other than Cs and Sr	Exercise concluded + Extension to a reactive pollutant (^{60}Co)
Contamination of Dnieper-Bug estuary	IMMSP (Ukraine) UHI (Ukraine)	University of Uppsala (Sweden) University of Sevilla (Spain) ENEA (Italy) IMMSP (Ukraine)	Coastal areas	Exercise concluded + Extension to biota and new application to hypothetical pulse case
Contamination of river Techa	Typhoon (Russia)	Preliminary results (Typhoon)	Radionuclide other than Cs and Sr (Pu)	Scenario description Preliminary results
^{226}Ra in Huelva estuary	Univ. Sev.	Scenario presentation	Radionuclides other than Cs and Sr	Preparation of the scenario

Examples of outcomes from the floodplain scenario



Key points - Floodplain scenario

- Radionuclide remobilisation is the most important factor controlling the amount of radionuclide in flooding water
- Whereas remobilisation of strontium was properly modelled, it was significantly overestimated for caesium. The present exercise bridged such a gap.
- Flooding dynamics are the main factor controlling the time behaviour of radionuclide in flood waters and are also the main source of uncertainty in the contamination dynamics

Collaborations with other WGs

- Theme 1 WG-1 TRS-364
  - Preparation of section "Advection/Dispersion/Sediment processes of interaction (physically orientated)"
- Theme 2 WG-1 NORM
  - Joint modelling exercise on ^{226}Ra in Huelva estuary