General Conclusions from Plavsk Scenario

Nine experts of environmental modeling participated in the Plavsk Scenario, including four who had not previously been involved in the international model testing programs.

The main targets of Plavsk Scenario have been acheved e.g. :

- **check models performance in dose reconstruction for specific locations in a case when ^{137}Cs tracer is used for estimation of ^{131}I deposition**
- **determination of thyroid dose uncertainty from inhalation and ingestion pathways**
- **identification of major sources of uncertainty**
- **limitation ? are relevant the Plavsk Scenario results for other areas affected by Charnobyl**

General Conclusions from Plavsk Scenario (cont)

constant isotopic ratio $^{131}I/^{137}Cs$ provided by Scenario Plavsk gives an approximation of ^{131}I contamination of food-chain, however inhomogeneous ^{137}Cs deposition and relatively short time of rain during the cloud passage (6 hours) indicates that the radioactive fallout can be classified as mixed (dry&wet) and in this case a regional approach should be be applied to determine more complex relationship between ^{131}I deposition and ^{137}Cs deposition.

model of grass interception in a case of mixed (dry&wet) radioiodine fallout need to be carefully considered.

uncertainty associated with prediction of ^{131}I concentration in air over the region, depends on physico-chemical forms of airborne radioiodine during the passage of radioactive cloud as well as meteorological conditions.

inhomogeneous pattern of ^{131}I fallout not necessary reflects changeability of ^{131}I concentration in air over 40 x60 km area.
A plume dispersion model are envisaged to verify this assumption.

General Conclusions from Plavsk Scenario (cont)

the time when cows have been put on a pasture seems to be the most important factor of miss predictions of ^{131}I concentration in milk and consequently ingestion doses. It needs to be carefully considered.

In general, although IWG was dealing with areas of assessment modeling for which the capabilities are not yet well established; there is remarkably improvement in models performance comparing with previous radioiodine scenarios. Predictions of the various models were with in a factor of three of the observations, discrepancies between the estimates of average doses to thyroid produced by most participant not exceeded a factor of ten.

The process of testing independent model calculations against independent data set also provided useful information to the originators of the test data.

EMRAS Iodine Working Group

MILESTONES (planned)

- **January 2005**
  - distribution of draft Warsaw Scenario
  - Final draft on February

Testing and validation of dosimetry models using data from Chernobyl ^{131}I fallout in the Plavsk agricultural area

- **January 2005 - June 2005**
  - predictions for Warsaw Scenario
- **IWG meeting June -July 2005 (probably POLAND, Warsaw or Krakow)**
  - disclosing observed data, evaluation of predictions ???
- **July- October 2005**

  second run of predictions
- **3rd Combined EMRAS meeting Autumn 2005**
  - data evaluation, IWG Report

MODELS (*9 participants*)

Model		Participant Name	Country	Organization
1	LIETDOS	Ms T. Nedveckaite (BIOMASS)	Lithuania	Institute of Physics
2	OSCAAR	Mr T HOMMA (BIOMASS)	Japan	Japan Atomic Energy Research Institute
3	UniVes	Mr B.Kanyár (BIOMASS)	Hungary	University of Veszprém Department of Radiochemistry
4	CLRP	Mr P. Krajewski (BIOMASS)	Poland	Central Laboratory for Radiological Protection
5	ASTRAL ?	Ms C. Duffa (New)	France	Institut de Radioprotection et de Sûreté Nucléaire (IRSN)
6	Ecosys-87	Mr M. Ammann (New)	Finland	Radiation & Nuclear Safety Authority (STUK)
7	Plavsk Dose Calculator	Mr S. Simon (New)	USA	National Cancer Institute
8	SPADE V.4.6 ?	Mr D. Webbe-Wood (New)	UK	Food Standard Agency
9	CLIMRAD	O. Vlasov (New)	Russian Federation	Medical Radiological Research Center

CONSIDERED FURTHER SCENARIO

^{131}I WARSAW SCENARIO (Chernobyl)

in preparation (description, electronically available input data)

crucial points for model validation!

- **effectiveness countermeasures in a real emergency situation!**
  - **administration of stable iodine solution**
  - **limitation of fresh milk consumption**
  - **restriction of cows pasturing**

end points considered for model testing:

- **^{131}I concentration in milk**
- **^{131}I thyroid burden for different age groups for two/three specified location**

^{131}I WARSAW SCENARIO (Chernobyl)

The following calculation could be performed for model comparison purposes:

doses to specified age group (critical 10 years old)

mean inhalation dose (with and without thyroid blocking)

mean ingestion dose (with and without thyroid blocking)

mean ingestion dose (with and without thyroid blocking + cows pasturing ban)

2nd Combined Meetings of the IAEA Programme on
Environmental Modelling for RAdiation Safety (EMRAS) (2)
8–11 November 2004

EMRAS Iodine Working Group

^{131}I release

B.Kanyár, University of Veszprém Department of Radiochemistry, Hungary
Nuclear accident in NPP Paks (10 April, 2003), release, radioiodine forms,deposition

Irena Malátová, National Radiation Protection Institute, Czech Republic
(^{137}Cs in VAMP's Central Bohemia Scenario)
Chernobyl Prague
Air, Precipitation, Vegetation, Animal feed, Water, Milk, Human Thyroid

^{129}I release

Stuart W. Conney, **FOOD STANDARDS AGENCY**, UK
Sellafield releases, Air, Vegetation, Soil, Milk

Ukrainian Institute of Agricultural Radiology (UIAR).

V. KASHPAROV

^{131}I (NaI solution) experiments with cows

Forage, Milk, Animal Thyroid,