MODARIA
Modelling and Data for Radiological Impact Assessment
Objectives and current Status

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36th Meeting of WASSC
Vienna, 19 November 2013
Meetings

• 1st Technical Meeting: Vienna, 19-22 Nov 2012
  • 151 Participants
  • 43 Member States
  • Setup of 10 Workings Groups

• 2nd Technical Meeting: Vienna, 11-15 Nov 2013
  • 160 Participants
  • 45 Member States

• Interim Meetings
  • Held half-way between the Plenaries by the Working Group
Objectives

- **Improve capabilities in radiological impact assessment**
  - Test, compare and develop models
  - Analyse, evaluate and compile data

- **Assessments in planned, emergency and existing exposure situations**
  - For people
  - For the environment

- **Develop harmonized assessment tools**

- **Support to fulfil regulatory requirements**

- **Provide a forum for exchange of experiences and knowledge**
60. Encourages the participation of Member States in the **Modelling and Data for Radiological Impact Assessments (MODARIA)** programme, launched in November 2012 to foster, develop and maintain capabilities in assessing radiological impacts from radionuclides being released or extant in the environment;
Needs for modelling

- **Requirements for assessment models**
  - Simple and transparent
  - Harmonized
  - Widely applicable
  - Conservative, but not too pessimistic
  - Provide certainty with to legal issues

- **Sound scientific base of assessments of radiological impacts**
  - Understand underlying transfer mechanism and exposure processes
  - Explore possibilities and limitations of modelling
  - Needed in any licensing process
  - Monitoring
    - Optimize monitoring
    - Interpretation of monitoring results
    - Appropriate allocation of efforts for environmental monitoring
Past Programmes

  - Mainly scenarios from Chernobyl release
  - Transfer data collection

  - short- and long-term releases
  - power reactors, solid waste disposal repositories, uranium mill tailings

- **BIOMASS (1996-2001)**
  - Chernobyl scenarios
  - Environmental clean-up
  - Long-term environmental impact of waste disposal: *Reference biospheres*

- **EMRAS I (2003-2007)**
  - Scenarios from routine and accident situations
  - Transfer data review and update
  - Biota model testing and comparison
Identification of MODARIA topics

- **Questionnaire in 2012**
  - Sent to potential participants and organisations involved in previous programmes
  - Scientific interests and gaps
  - Needs in Member States
  - 160 responses from 49 Member States

- **Preparation Meeting in March 2012**
  - Develop proposals for a new programme

- **Presentation on the 1st Technical Meeting Discussion on the**
MODARIA Working Groups

- **Theme 1: Remediation of Contaminated Areas**
  - WG 1 — *Remediation strategies* and decision aiding techniques
  - WG 2 — Exposures in *urban environments* and effect of *remedial measures*
  - WG 3 — Radiological impacts from *NORM and legacy sites and remediation*

- **Theme 2: Uncertainties and Variability**
  - WG 4 — Analysis of *radio-ecological data*
  - WG 5 — Uncertainty from *routine discharges* of radionuclides
  - WG 6 — Environmental modelling for radioactive *waste disposal facilities*
  - WG 7 — Models for *accidental tritium releases*

- **Theme 3: Exposures and Effects on Biota**
  - WG 8 — Transfer and exposure *models for flora and fauna*
  - WG 9 — *Effects* on populations of wildlife species

- **Theme 4: Marine Modelling**
  - WG 10 — Dispersion and transfer in *the marine environment*
Participants

- Operators
- Regulators
- State Agencies
- Technical Support Organisations
- Universities
- National Research Institutes
Mode of operation

• One joint meeting of all working groups in Vienna
  • Enable cooperation between working groups to address cross-cutting topics
  • Well-accepted

• Interim Meetings
  • Held half-way between the Plenaries by the Working Groups
  • Vienna or other places
Results

• IAEA Publications
  • Technical documents (TECDOCS)
  • Technical Report series (TRS)

• Papers in peer reviewed Scientific Journals
  • Publication of results is encouraged
  • Special issues
    • E.g. Journal Environmental Radioactivity
    • Large number of individual papers prepared BIOMASS. EMRAS I, EMRAS II published on initiative of the WG
Funding

- **Mainly self-supporting**
  - Small amounts of IAEA
  - Limited to few participants with key contributions who could otherwise not attend
  - Few participants

- **No financial support through TC**
  - Big interest from countries in Africa, Asia, Latin America, and Eastern Europe
  - Most nominations and requests for financial support had to be denied
  - Less than 10 nominees from these countries could manage participation
MODARIA

Modelling and Data for Radiological Impact Assessments

Background

The general aim of the MODARIA Programme is to improve capabilities in the field of environmental radiation dose assessment by means of acquisition of improved data for model testing, model testing and comparison, reaching consensus on modelling philosophies, approaches and parameter values, development of improved methods and exchange of information.

MODARIA continues some of the work of previous international exercises in the field of radiological modelling and focuses on areas where uncertainties remain in the predictive capability of environmental models. These previous international exercises include BIOMOVES (BIospheric Model Validation Study) and BIOMOVES II, initiated by the Swedish Radiation Authority in 1995, and the programmes sponsored by the IAEA: VMPS (Validation of Model Predictions, 1986–1990) and BIOMASS (BIosphere Modelling and ASSESSment, 1996–2001), EMRAS (Environmental Modelling for RAdition Safety), 2003–2007 and EMRAS II which ran from 2009 to 2011.
