International Union of Radioecology

François Bréchignac and Per Strand
(IUR President & General Secretary)
What is Radioecology

A multidisciplinary scientific discipline:

- biology, chemistry, physiology, ecology, biogeochemistry, geophysics, ecotoxicology, mathematics (models, statistics), metrology, ...

- centered on the environment,

- aimed at describing, understanding and predicting:
  - the fate of artificial and natural radioactivity in environmental systems,
  - its impact on man via the environment - human risk assessment
  - Its impact on the environment itself (biota, ecosystems) - ecological risk assessment,
  - biogeochemical processes by means of tracer studies
Union Internationale de Radioécologie
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Releases
(normal, accidental)
TNORMs

AXE 1
Source term
Speciation, mobility, bioavailability

ATMOSPHERE

BIOSPHERE

AXE 2
Transfers
In abiotic compartments
Within the human food chain
Within biota trophic networks

AXE 2
STOCKAGE
DECHETS

Waste in deep geological repository

AXE 4
Risk assessment
Human risk assessment
Ecological risk assessment

AXE 3
Effects
(On man)
On biota, ecosystems
Life support
Services

AXE 5
Tracer studies
Biogeochemical cycles, streams, run-off...

AXIS 1

ECOSYSTEM
Fauna

ECOSYSTEM
Flora

ATMOSPHERE

BIOSPHERE

GEOSPHERE

Scientific approaches
Experimental designs, models, field investigations

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IUR goals and objectives

- To ensure, stimulate and maintain high level radioecological expertise capacity throughout the world to secure the safe development of nuclear based technologies and the public awareness and acceptance (teaching and training)

- To promote scientific innovation, identify research priorities and stimulate the co-construction of international programmes, sharing resources and research infrastructures (brain-storming in Task Groups)

- To perpetuate and strengthen its 37 years old network of scientists and professionals for the benefit of all members and member countries (communication, information, publication, dissemination)

- To liaise all the above radioecological outputs with other relevant international organisations, whether focused on science, operational radioecology, or regulation for radiation protection
IUR in brief

- Non-political, non-profit Knowing Society dedicated to the worldwide development of Radioecology: “Think Tank“
- Founded in the 70s as an International Association (registered in Belgium)
- More than 1500 registered, 624 active members, worldwide (68 countries)
IUR in brief

- **Main tools of action:**
  - Dedicated Task Groups (brain storming)
  - Dissemination of information (Congresses, Workshops, Seminars)
  - Networking – Website: [www.iur-uir.org](http://www.iur-uir.org)
  - Training courses
Current Board of Council (elected)

Regular Board members

François Bréchignac (France), President
Rudolf Alexakhin (Russia), Vice-President
Per Strand (Norway), General Secretary
Simon Carroll (New Zealand), Treasurer
Jose Marcus Godoy (Brasil)
Steve Sheppard (Canada)

Regional Coordinators Board members

Rachid El Mrabet (Morocco), Africa & Middle East
Kathy Higley (USA), Northern America
Yuri Kutlakhmedov (Ukraine), CIS countries
Satoshi Yoshida (Japan), Asia & Australasia
Paulina Schuller (Chile), South America & Caraibeans
Hildegarde Vandenhove (Belgium), Europe

Advisor for Developing Countries

A. Sattar Mollah (Bangladesh)
Task Groups

Active

- Radioecology in a multipollution context (Hildegarde Vandenhove, Belgium) IUR/IAEA
- Ecosystem approach (2d) to EP (François Bréchignac, France) IUR/ICRP
- Biota transfer parameters for EP (David Copplestone, U.K.) IUR/IAEA
- Arctic and Antarctic Regions (Mark Dowdall, Norway)
- Radioecology and waste (Mike Thorne, U.K.)
- Asian Radioecology network (Satoshi Yoshida, Japan)
- Speciation (Brit Salbu, Norway)
- Non-lethal methods for Radioecology (Mike Woods, U.K.)
- Ring of Five (Olivier Masson, France)

Completed (in the recent years)

- Radioecological Parameter Values - Update of TRS 364 (D. Copplestone, U.K.), IAEA/IUR
- Radioecology of Rice (H. Tsukada, Japan)
- Radioecological sensitivity (F. Carini, Italy)
- Ecosystem approach (1st) to EP (François Bréchignac, France)
Conferences

Co-organized/sponsored by IUR

- NORM 6, Marrakesh, Morroco, March 2010
- African IRPA 3, Nairobi, Kenya, September 2010
- VI Congress on Radiation Research, Moscow, Russia, October 2010
- INSINUME 2010, Dubna, Russia, October 2010
- Joint Third International Conference (N.V. Timofeeff-Ressovsky), Alushta, Crimea, Ukraine, October 2010.
- XXXIX Klechkovsky Radioecological Readings, Obninsk, November 2010
- ICRER 2, Hamilton, Canada, June 2011
- INSINUME 2012, Brussels, June 2012
- 6th SETAC World Congress, Berlin, Germany, May 2012
- ICObTE 12th, Athens, Georgia, USA, June 2013
- Woodshole Fukushima Meeting, Woodshole, MS, USA, May 2013
- INSINUME 2014, Uzhgorod, Ukraine, October 2014
- ICRER 3, Barcelona, Spain, September 2014
Sponsored/organized by IUR

- IUR TG Workshop, Multiple pollution, SCK-CEN, Belgium, September 2010
- IUR TG Workshop, Ecosystem approach, Aix-en-Provence, France, April 2011
- IUR Environmental radioactivity session at SETAC Annual Meeting, Boston, USA, Nov 2011
- IUR Environmental radioactivity session at SETAC World meeting, Berlin, Germany, 2012
- IUR TG Workshop, Non-lethal methods, Cambridge, UK, September 2012
- IUR TG Seminar, Ecosystem approach, Stockholm University, December 2013
- IUR TG Workshop, Ring of Five, Barcelona, Spain, September 2014
- IUR TG Workshop, Harmonisation of radioecology networks, Aix en Provence, France, June 2014
- IUR TG Workshop, Ecosystem approach, Place tbd, France, October 2014
Liaison

- An active web site for communication and visibility
  www.iur-uir.org (> 10,000 visits per month)
IUR encourages publication in JER

- An official link of affiliation with an international Journal (JER)
- Easy and cheap access to all IUR members, preferential rate of subscription to E-Journal
Networking

IUR develops and supports networking initiatives

- A number of formal agreement/MoUs with sister organisations, to support a commitment to worldwide networking:
  - NREA
  - SPERA
  - NCoRE
  - ALLIANCE
  - SETAC
  - JER
Currently...

- IUR sponsors the European Master in Radioecology (based in Norway and France)

- IUR sponsors students for travels/works/participation in conferences/workshops/summer schools

- IUR sponsors training based on the ERICA risk assessment tool

- ...
Publications
Prices and awards from IUR

- IUR “V.I. Vernadsky” Award (senior scientists)
  - W. Whicker (Nice, France, 2005)
  - G. Polikarpov (Bergen, Norway, 2008)
  - Y. Omomo (Hamilton, Canada, 2011)
  - XXX YYY (Barcelona, Spain, 2014)

- Young Investigator Award (junior scientists)
Strategy for the future focused on science

- Promoting prospective view and scientific innovation
  - Chronic exposure effects to low dose irradiation
  - Propagation of effects from individuals to ecosystems, long term significance through the succession of generations
  - Appraisal of ecological knowledge (indirect effects, resilience, ...)
  - Ecosystem approach to ecological risk assessment (cf. International soft laws, such as Convention on Biological Diversity, ...)
  - Appraisal of multicontaminant mixtures, comparative risk assessments (synergies/antagonisms)
  - Harmonisation of human and ecological risk assessment
  - Transfers in tropical/changing environments
  - NORMs and TNORMs
IUR proposes to promote the construction of a coordination process dedicated to harmonize Radioecology networks…

… to be brain-stormed during this workshop