

Publications from the EMRAS I Programme

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IAEA

International Atomic Energy Agency

Topics in EMRAS I

- Revision of the IAEA Handbook on transfer in terrestrial and aquatic environments (TRS-364)
- Environmental transfer of ^3H and ^{14}C
- Environmental transfer of ^{131}I (use of Chernobyl data)
- Radionuclide transfer in aquatic systems
- Behaviour of radionuclides in urban environments
- Estimating the exposure of non-human biota
- Behaviour of NORM in the environment

IAEA Publications

- Technical Report Series
 - Handbook of Parameter Values for the Prediction of Radionuclide Transfer in Terrestrial and Freshwater Environments, IAEA-TRS-472 (published 2010)
- Published TECDOCS
 - Quantification of Radionuclide Transfer in Terrestrial and Freshwater Environments for Radiological Assessments, IAEA-TECDOC-1616, 618 p.
- 6 TECDOCS to be published
 - Modelling the Environmental Transfer of Tritium and ^{14}C to Biota and Man
 - Testing of Models for Predicting the Behaviour of Radionuclides in Freshwater Systems and Coastal Areas
 - Modelling Radiation Exposure and Radionuclide Transfer to Non-Human Species
 - Modelling the Transfer of Radionuclides from Naturally Occurring Radioactive Material (NORM)
 - Environmental Modelling of Remediation of Urban Contaminated Areas
 - Validation of ^{131}I ecological transfer models and thyroid dose assessments using Chernobyl fallout data

Publications in scientific journals

Urban Modelling

Thiessen, K.M., Batandjieva, B., Andersson, K.G., Arkhipov, A., Charnock, T.W., Gallay, F., Gaschak, S., Golikov, V., Hwang, W.T., Kaiser, J.C., Kamboj, S., Steiner, M., Tomás, J., Trifunovic, D., Yu, C., Zelmer, R., and Zlobenko, B.

Improvement of modelling capabilities for assessing urban contamination: The EMRAS Urban Remediation Working Group.

Applied Radiation and Isotopes 66:1741–1744 (2008).

Thiessen, K.M., Arkhipov, A., Batandjieva, B., Charnock, T.W., Gaschak, S., Golikov, V., Hwang, W.T., Tomás, J., and Zlobenko, B.

Modelling of a large-scale urban contamination situation and remediation alternatives.

Journal of Environmental Radioactivity 100:413–421 (2009).

Thiessen, K.M., Andersson, K.G., Batandjieva, B., Cheng, J.-J., Hwang, W.T., Kaiser, J.C., Kamboj, S., Steiner, M., Tomás, J., Trifunovic, D., and Yu, C.

Modelling the long-term consequences of a hypothetical dispersal of radioactivity in an urban area including remediation alternatives.

Journal of Environmental Radioactivity 100:445–455 (2009).

Thiessen, K.M., Andersson, K.G., Charnock, T.W., and Gallay, F.

Modelling remediation options for urban contamination situations.

Journal of Environmental Radioactivity 100:564–573 (2009).



Publications in scientific journals

Environmental Transfer of ^{131}I

M. Bartusková, I. Malátová, V. Berkovsky, P. Krajewski, M. Ammann, V. Filistovic, T. Homma, J. Horyna, B. Kanyár, T. Nedveckaite, O. Vlasov and I. Zvonova

Radioecological assessments of the Iodine working group of IAEA's EMRAS programme: Presentation of input data and analysis of results of the Prague scenario

Radioprotection, Vol. 44, No. 5, 295–299 (2009).

I. Zvonova, P. Krajewski, V. Berkovsky, M. Ammann, C. Duffa, V. Filistovic, T. Homma, B. Kanyar, T. Nedveckaite, S.L. Simon, O. Vlasov, D. Webbe-Wood

Validation of ^{131}I ecological transfer models and thyroid dose assessments using Chernobyl fallout data from the Plavsk district, Russia

J. Environm. Radioactivity, January 2010

Revision of TRS

- Special Issue of Journal Environmental Radioactivity
 - Volume 100, Issue 9, September 2009
 - 20 papers to specific environmental transfer process
- Largest EMRAS I working group
- Includes input from other working groups

Quantification of radionuclide transfer in terrestrial and freshwater environments

Ph. Calmon, S. Fesenko, G. Voigt, G. Linsley

Interception of dry and wet deposited radionuclides by vegetation

Gerhard Pröhl

Foliar transfer into the biosphere: review of translocation factors to cereal grains

C. Colle, C. Madoz-Escande, E. Leclerc

New best estimates for radionuclide solid–liquid distribution coefficients in soils, Part 1: radiostrontium and radiocaesium

C. Gil-García, A. Rigol, M. Vidal

New best estimates for radionuclide solid–liquid distribution coefficients in soils. Part 2. Naturally occurring radionuclides

H. Vandenhove, C. Gil-García, A. Rigol, M. Vidal

New best estimates for radionuclide solid–liquid distribution coefficients in soils. Part 3: miscellany of radionuclides (Cd, Co, Ni, Zn, I, Se, Sb, Pu, Am, and others)

C. Gil-García, K. Tagami, S. Uchida, A. Rigol, M. Vidal

Vertical migration of radionuclides in undisturbed grassland soils

Gerald Kirchner, Friederike Streb, Peter Bossew, Sabine Ehlken, Martin H. Gerzabek

Proposal for new best estimates of the soil-to-plant transfer factor of U, Th, Ra, Pb and Po

H. Vandenhove, G. Olyslaegers, N. Sanzharova, O. Shubina, E. Reed, Z. Shang, H. Velasco

Influence of crop types and soil properties on radionuclide soil-to-plant transfer factors in tropical and subtropical environments

H. Velasco, J. Juri Ayub, U. Sansone

Uptake of radionuclides and stable elements from paddy soil to rice: a review

S. Uchida, K. Tagami, Z.R. Shang, Y.H. Choi

Root uptake of radionuclides following their acute soil depositions during the growth of selected food crops

Yong-Ho Choi, Kwang-Muk Lim, In Jun, Doo-Won Park, Dong-Kwon Keum, Chang-Lee

Radionuclide transfer to fruit in the IAEA TRS 364 Revision

Franca Carini

Transfer parameter values in temperate forest ecosystems: a review

Philippe Calmon, Yves Thiry, Gregor Zibold, Aino Rantavaara, Sergei Fesenko

Quantifying the transfer of radionuclides to food products from domestic farm animals

B.J. Howard, N.A. Beresford, C.L. Barnett, S. Fesenko

Watershed wash-off of atmospherically deposited radionuclides: a review of normalized entrainment coefficients

L. Garcia-Sanchez, A.V. Konoplev

The role of physical processes controlling the behaviour of radionuclide contaminants in the aquatic environment: a review of state-of-the-art modelling approaches

Luigi Monte, Raul Periañez, Patrick Boyer, Jim T. Smith, John E. Brittain

Probabilistic distribution coefficients (K_{ds}) in freshwater for radioisotopes of Ag, Am, Ba, Be, Ce, Co, Cs, I, Mn, Pu, Ra, Ru, Sb, Sr and Th – implications for uncertainty analysis of models simulating the transport of radionuclides in rivers

P. Ciffroy, G. Durrieu, J.-M. Garnier

Mass balance approach to estimating radionuclide loads and concentrations in edible fish tissues using stable analogues

T.L. Yankovich

The role of analogues in radioecology

Beata Varga, Elisabeth Leclerc, Peter Zagyvai

Protection of the Environment

- 7 papers dealing with
 - Dosimetry
 - Transfer of radionuclides to biota in terrestrial and aquatic ecosystems
 - Model comparison
 - Model performance

Protection of the Environment

Vives i Batlle, J., Balonov, M., Beaugelin-Seiller, K., Beresford, N.A., Brown, J., Cheng, J-J., Copplestone, D., Doi, M., Filistovic, V., Golikov, V., Horyna, J., Hosseini, A., Howard, B.J., Jones, S.R., Kamboj, S., Kryshev, A., Nedveckaite, T., Olyslaegers, G., Pröhl, G., Sazykina, T., Ulanovsky, A., Vives Lynch, S., Yankovich, T. and Yu, C. 2007.

Inter-comparison of unweighted absorbed dose rates for non-human biota.
Radiat. Environ. Biophysics, 46, 349-373.

Beresford, N.A., Balonov, M., Beaugelin-Seiller, K., Brown, J., Copplestone, D., Hingston, J.L., Horyna, J., Hosseini, A., Howard, B.J., Kamboj, S., Nedveckaite, T., Olyslaegers, G., Sazykina, T., Vives i Batlle, J., Yankovich, T.L., Yu. C. 2008.

An international comparison of models and approaches for the estimation of the radiological exposure of non-human biota.
Applied Radiation and Isotopes, 66, 1745-1749.

Beresford, N.A., Barnett, C.L., Brown, J., Cheng, J-J. Copplestone, D., Filistovic, V., Hosseini, A., Howard, B.J., Jones, S.R., Kamboj, S., Kryshev, A., Nedveckaite, T., Olyslaegers, G., Saxén, R., Sazykina, T., Vives i Batlle, J., Vives-Lynch, S., Yankovich, T. and Yu, C. 2008.

Inter-comparison of models to estimate radionuclide activity concentrations in non-human biota.
Radiat. Environ. Biophys., 47, 491-514.

Beresford, N.A., Barnett, C.L., Beaugelin-Seiller, K., Brown, J.E., Cheng, J-J., Copplestone, D., Gaschak, S., Hingston, J.L., Horyna, J., Hosseini, A., Howard, B.J., Kamboj, S., Kryshev, A., Nedveckaite, T., Olyslaegers, G., Sazykina, T., Smith, J.T., Telleria, D., Vives i Batlle, J., Yankovich, T.L., Heling, R., Wood, M.D., Yu, C. 2009.

Findings and recommendations from an international comparison of models and approaches for the estimation of radiological exposure to non-human biota.,
Radioprotection, 44, 5, 565-570.

Beresford, N.A., Barnett, C.L., Brown, J.E., Cheng, J-J., Copplestone, D., Gaschak, S., Hosseini, A., Howard, B.J., Kamboj, S., Nedveckaite, T., Olyslaegers, G., Smith, J.T., Vives I Batlle, J., Vives-Lynch, S., Yu, C. in-press

Predicting the radiation exposure of terrestrial wildlife in the Chernobyl exclusion zone: an international comparison of approaches.
J. Radiological Prot.

Yankovich, T.L., Vives I Batlle, J., Vives-Lynch, S., Beresford, N.A., Barnett, C.L., Brown, J.E., Cheng, J-J., Copplestone, D., Heling, R., Hosseini, A., Howard, B.J., Kryshev, A.I., Nedveckaite, T., Smith, J.T. and Wood, M. (submitted). International model validation exercise on radionuclide transfer and doses to freshwater biota. Radiation and Environmental Biophysics

Beaugelin-Seiller, K., Brown, J.E., Cheng, J-J., Copplestone, D., Heling, R., Hosseini, A., Howard, B.J., Kryshev, A.I., Nedveckaite, T., Smith, J.T., Wood, M.D.

International model validation exercise on radionuclide transfer and doses to freshwater biota, Submitted J. Radiological Prot.



Conclusions

- Numerous publications contribute to the success of EMRAS
- Intensive publication in peer reviewed journals underlines the high quality of the work of EMRAS
- Success provided by the consequent integration of the publication in the plans of the working groups