

# Radioecological Models

A compilation of the IAEA's Chemistry Unit,  
PCI, NAAL, Seibersdorf



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1957–2007

# Models submitted until now

- Biospere
- STARC-14
- STARH-3
- PRISM
- STADE
- Roe deer
- UniVerRad
- Dynacon
- METRO-K
- ENDOS
- VENTOMOD
- MOIRA-plus
- RAPAD
- COSE
- WAT
- PRAME
- IDLE
- ADO
- Aquabios/MoM



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# Models missing

- ASTRAL
- FRUTI-CROM
- FRUITPATH
- RUVFRU
- FARMLAND
- DOSDIM
- RIFE1
- SAVE
- LANDSCAPE

*And many more*

# Web based information

- NAAL/PCI/Chemistry unit/ web page
- CD

*Aim: Source of information on existing radioecological models, and to give literature citations and contact addresses for more information on the models and the software*

# Search topics within the compilation

Model names are linked to

- Field of application (urban, **agriculture**, forest, aquatic (marine, freshwater, groundwater), semi arid, air, others)
- Isotope groups



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# Agricultural models

| Name of Model<br>(abbreviated) | Isotopes considered  |
|--------------------------------|--|
| ENDOS                          | More than 100 radionuclides  |
| BIOSPHERE                      | C-14, Ca-41, Cl-36, Cs-137, I-129, Nb-94, Ni-59, Np-237, Pa-231, Pd-107, Pu-242, Ra-226, Rb-87, Sr-90, Se-79, Sm-147, Sn-126, Tc-99, Th-229, Th-230, Th-232, U-233, U-234, U-235, U-236, U-238 and Zr-93   |
| STARC-14                       | C-14   |
| STARH-3                        | H-3  |
| SPADE                          | S-35, Co-60, Ni-63, Sr-89, Sr-90, Zr-95, Nb-95, Tc-99, Ru-103, Ru-106, Sb-125, I-129, I-131, Cs-134, Cs-137, Ba-140, Ce-144, U-235, Np-237, Pu-238, Pu-239, Pu-240, Am-241, Cm-252.  |
| PRISM                          | Am-241, Ba-140, Ce-144, C-14, Cm-242, Co-60, Cs-134, Cs-137, H-3, I-125, I-129, I-131, Nb-95, Ni-59, Ni-63, Np-237, Np-239, P-32, P-33, Pu-238, Pu-239, Pu-240, Pu-241, Ru-103, Ru-106, S-35, Sb-125, Se-75, Se-79, Sr-89, Sr-90, Tc-99, U-233, U-234, U-238, U-235, Zr-95 |
| UniVesRad                      | Fission and corrosion products (Cs-137, I-131, ...), depending on the database, Rn-daughters   |
| DYNACON                        | Cs, Sr, I  |
| VENTOMOD                       | $^{134}\text{Cs}$ ; $^{90}\text{Sr}$ ; $^{65}\text{Zn}$  |
| Aquabios / MoM                 | classical (i.e. actinides) and specific radionuclides (i.e. H-3, C-14, Cl-36); toxic chemicals   |

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- Isotope groups



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# Freshwater models

| Name of Model<br>(abbreviated) | Isotopes considered                    |
|--------------------------------|--|
| BIOSPHERE                      | $^{137}\text{Cs}$ and $^{90}\text{Sr}$ |
| MOIRA-PLUS                     | $^{137}\text{Cs}$ and $^{90}\text{Sr}$ |



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# Search topics for the compilation

Model names are linked to

- Field of application (urban, agriculture, forest, aquatic (marine, freshwater, groundwater), semi arid, air, others)
- Isotope groups (Caesium, **Strontium**, Iodine, Thorium, Uranium, Actinides, Radium and Radon daughters and others)

# Models considering Sr- isotopes

| Name of Model<br>(abbreviated) | Isotopes considered  |
|--------------------------------|--|
| BIOSPHERE                      | C-14, Ca-41, Cl-36, Cs-137, I-129, Nb-94, Ni-59, Np-237, Pa-231, Pd-107, Pu-242, Ra-226, Rb-87, <b>Sr-90</b> , Se-79, Sm-147, Sn-126, Tc-99, Th-229, Th-230, Th-232, U-233, U-234, U-235, U-236, U-238 and Zr-93   |
| SPADE                          | S-35, Co-60, Ni-63, Sr-89, Sr-90, Zr-95, Nb-95, Tc-99, Ru-103, Ru-106, Sb-125, I-129, I-131, Cs-134, Cs-137, Ba-140, Ce-144, U-235, Np-237, Pu-238, Pu-239, Pu-240, Am-241, Cm-252.  |
| PRISM                          | Am-241, Ba-140, Ce-144, C-14, Cm-242, Co-60, Cs-134, Cs-137, H-3, I-125, I-129, I-131, Nb-95, Ni-59, Ni-63, Np-237, Np-239, P-32, P-33, Pu-238, Pu-239, Pu-240, Pu-241, Ru-103, Ru-106, S-35, Sb-125, Se-75, Se-79, <b>Sr-89</b> , <b>Sr-90</b> , Tc-99, U-233, U-234, U-238, U-235, Zr-95 |
| DYNACON                        | Cs, <b>Sr</b> , I  |
| VENTOMOD                       | <sup>134</sup> Cs, <sup>90</sup> <b>Sr</b> , <sup>65</sup> Zn  |
| MOIRA-PLUS                     | <sup>137</sup> Cs, <sup>90</sup> <b>Sr</b>   |

**Your input is needed to improve the  
compilation and to make it to an useful  
source of information**

Send your model information to:  
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