Interaction matrix for terrestrial pathways of tritium transfer and discussion…

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General interaction matrix

ATMO SYSTEM	Deposition		Deposition			Inhalation External	
	RIVER SYSTEM		Animal watering Irrigation		Food & water collecting	Inhalation External	
		MARINE SYSTEM			Food collecting	Inhalation External	
	Watershed erosion (*)		AGRI SYSTEM	Migration	Food collecting	Inhalation External	
			Irrigation	VADOZE & AQUIFER (*)	Water collecting		
			Animal feeding		FOOD SYSTEM	Ingestion	
						MAN	
(Release)	*(Release)*	*(Release)*		*(Release)*			*(RELEASE SYSTEM)*

Tritium interaction matrix for the terrestrial system (1)

Atmo-sphere	WetDepos. DryDepos.		FoliarAbsorption	NetPrimaryProd.		WetDepos DryDepos Irrigation …	Inhalation
Pollen & seeds release	Plant	•Transloc.				Literfall Senescence & death Root exud.	Ingestion
		(Organ)					
Evapo-transp.			Water RadDecay		BiolDecay		
				OrganicMatter RadDecay BiolGrowth			
					RestOfPlant		
Evapo-ration	RootUptake					Soil	
	Excretion? Death?					Excretion Death & decomp.	Animals

Tritium interaction matrix for the terrestrial system (2)

Atmo-sphere	WetDepos. DryDepos.		WetDepos Irrigation	DryDepos	DiffusiveExch	Inhalation	Deposition
	Plant		Root exudation	Literfall Senescence & death		Ingestion	
		Soil					
Evapo-ration	RootUptake		Water RadDecay	Sorption Fixation	Degassing IsotopicExch	Ingestion	Migration
			Desorption	OrganicMatter RadDecay	Degassing	Ingestion	
Diffusive-Exch	RootUptake		IsotopicExch Solubilisation	Adsorption	Air RadDecay		
Exhalatio n			Excretion	Excretion Death & decomposition	Inhalation (burrowing animals)	Animals	
Evapo-ration			Irrigation			Ingestion	"RestOfWorld" (water bodies, etc.)

Questions/discussion…

1. Should we divide plant into leaf foliar system (NPP, HTO foliar absorption…) and root system (rootuptake) ?
2. Should we consider starch metabolism within plants?
3. Should we consider other compartments in soils (microbiota, inorganic matter,etc.) and associated transfer processes ?
4. Consider following factors that influence transfer processes, such as :
   Air : PAR, concentration in AIR, temperature
   Plants : LAI
   Soils : texture, temperature…
5. Consider HT releases?

Next EMRAS meeting :

In Aix-en-Provence (South of France), September 6th- 9th