Gas and water source interaction matrix

	A	B	C	D	E	F	G	H
1	SOURCE (Gas)		1) Wet deposition 2) Sprinkler irrigation 3) Interception by soil	Advection/diffusion			1) Wet input 2) Interception by plant	
2		SOURCE (Water)	1) Irrigation (Infiltration) 2)Upwelling 3)Capillary rise				Interception of irrigation water	
3		Percolation	SOIL WATER	Diffusive exchange	Evaporation	Root uptake		Percolation to groundwater Surface run-off
4			Gaz sorption Diffusive exchange	SOIL ATMOSPHERE	Diffusion	Root uptake	Aerenchyma	
6					CANOPY ATMOSPHERE		1) FoliarUptake (HTO) 2)GrossPhotosynthesis (OBT) 3)Oxidation(HTtoHTO) (if HT gaseous release)	Free air
7				Root respiration		BELOWGROUND PLANT MATERIAL	Translocation (assuming root uptake)	Cropping loss
8					1) Transpiration 2) Aboveground plant respiration	Translocation	ABOVEGROUND PLANT MATERIAL	1)Cropping loss 2) Weathering
9				SoilMicrobialOxidation(HTtoHTO) (if HT gaseous release)				SINK

Soil layer interaction matrix (gas or water source)

The yellow boxes indicate the lower soil layer (LL) and the grey bowes indicate the upper soil layer (UL)

	A	B	C	D	E	F
1	SOURCE (gaz)				1) Wet deposition 2) Sprinkler irrigation 3) Interception by soil	Advection/diffusion
2		SOURCE (Water)	Upwelling		Infiltration (Irrigation)	
3		Percolation	SOIL WATER	Diffusive exchange	Capillary rise (HTO)	
4			Gaz sorption	SOIL ATMOSPHERE		Diffusion/advection
5	Evaporation		Percolation		SOIL WATER	Diffusive exchange
6				Diffusion	Gaz sorption	SOIL ATMOSPHERE

Tritium interaction matrix for animals

	A	B	C	D	E	F	G
1	ATMOSPHERE				Inhalation		
2		SOIL			Ingestion	Ingestion	
3			PLANT MATERIAL		Ingestion	Ingestion	
4		1)Excretion 2) Death and decomposition	Excretion	ANIMAL	1) Translocation 2) Hmetabolism?		
5	Exhalation	Inhalation (burrowing animals)			Water		Excretion
6						Dry Matter	1)Excreation 2) Death and decomposition (both at outcrop)
7							SINK

General tritium interaction matrix for the terrestrial environment

Processes of potential importance for H3 are highlighted in bold.

ATMOSPHERE	**Deposition**		**1) Deposition and interception 2) GrossPhotosynthesis**	**Gross photosynthesis**		**Inhalation**		**1) Dry deposition 2)Precipitation 3) Interception**		
1)Evaporation 2)Droplet production	WATER BODIES		**1) Root uptake 2) Irrigation**			**Ingestion**		**1)Irrigation 2)Recharge by surface waters**	Release from solution	Recharge by surface waters
		VEGETATION (ABOVE - BELOWGROUND)				**Ingestion**	**Ingestion**			
1)Respiration 2)**Transpiration**	Senescence and death		WATER						Root respiration	Biological weathering
1)Respiration 2) Leaf fall 3) Release of other organic compounds				DRY MATTER					Root respiration	1) Litter fall (at outcrop) 2) Senescence and death 3) Biological weathering
	1)Excretion 2) Death	Excretion			ANIMALS	1) Translocation 2) Hmetabolism?	Translocation			
Exhalation						WATER	OBT formation	Excretion	Inhalation (burrowing animals)	Excreion
							DRY MATTER			1)Excreation 2) Death and decomposition (both at outcrop)
Evaporation	Groundwater recharge		**Root uptake**		Ingestion			SOIL WATER	**Diffusive exchange**	Surface run-off
Diffusion			**Root uptake and transport in aerenchyma**					**Diffusive exchange**	SOIL ATMOSPHERE	Diffusive exchange
Resuspension (at outcrop) Diffusion	Desorption	1)External contamination 2) Irrigation			1)Ingestion 2)Bioturbation			1)**Diffusion** 2)Advection 3)Colloid transport	**Diffusive exchange**	Interface with geosphere