

# **The Glarus overthrust : a major pathway for the escape of fluids out of the Alpine orogen**

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<sup>1</sup>GSA Data Repository item 2002105, is available from Documents Secretary, GSA, P.O. Box 9140, Boulder, CO 80301-9140, editing@geosociety.org, or at [www.geosociety.org/pubs/ft2002.htm](http://www.geosociety.org/pubs/ft2002.htm).

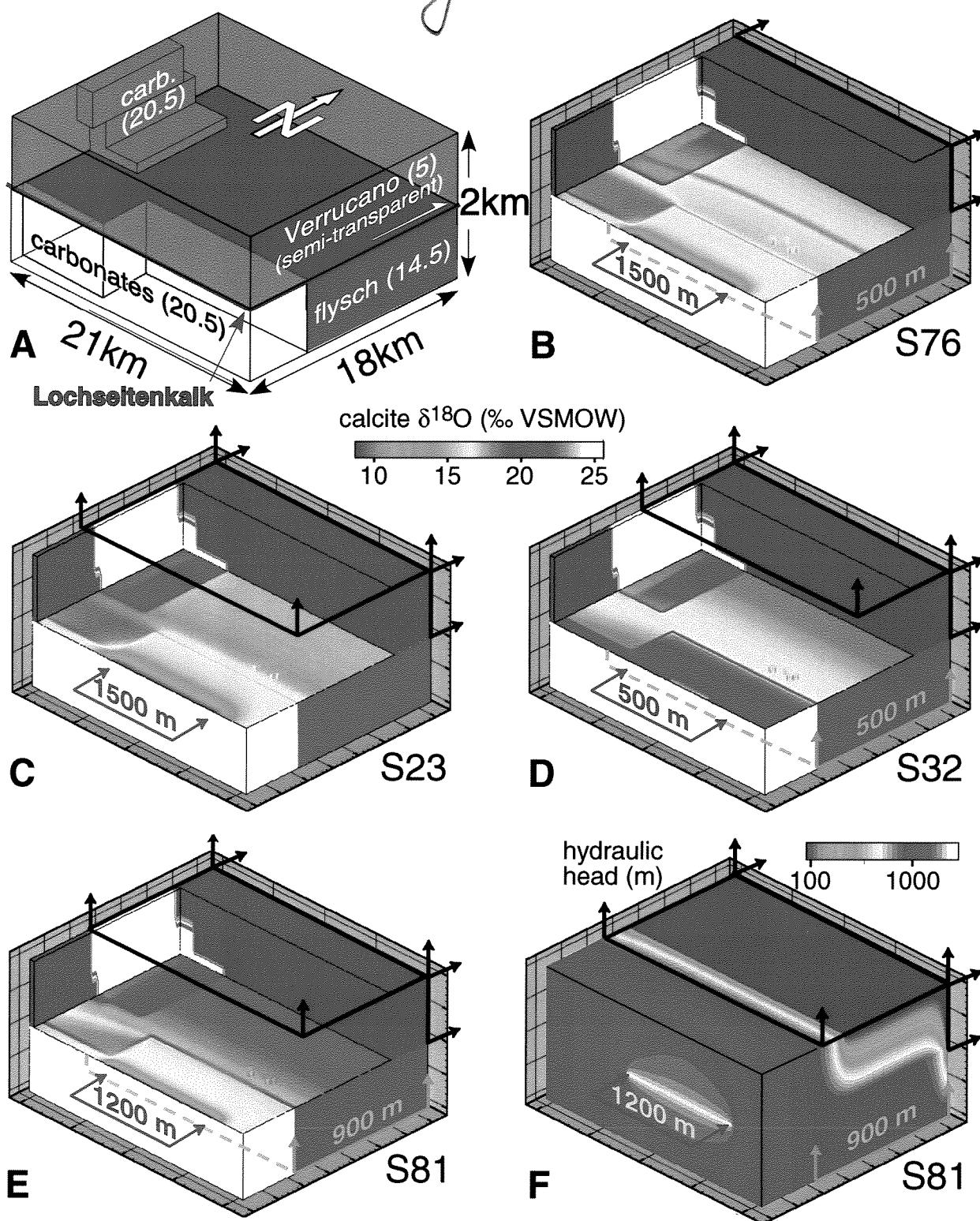
## **DATA Repository :**

As complement to Figure 2 of the original article, 12 additional fluid modelling configurations, out of a modelling study with more than 100 runs are illustrated. These models carry their original numbers :

S23, S24, S25, S32, S34, S38, S66, S72, S76, S77, S78, S81

For each model, physical properties of the different lithologies are listed in a summary table (top left). The geometric configuration of source(s) and sink(s) are illustrated in a block diagram (top right). Resulting hydraulic heads as well delta-18-O patterns after 25'000, 100'000 and 500'000 years modelling time respectively are illustrated in color coded block-diagrams.

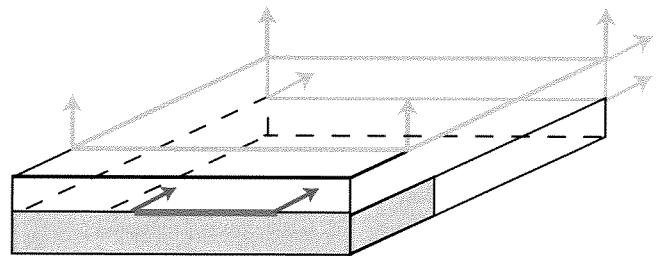
Figure 2 (of article)



# S23

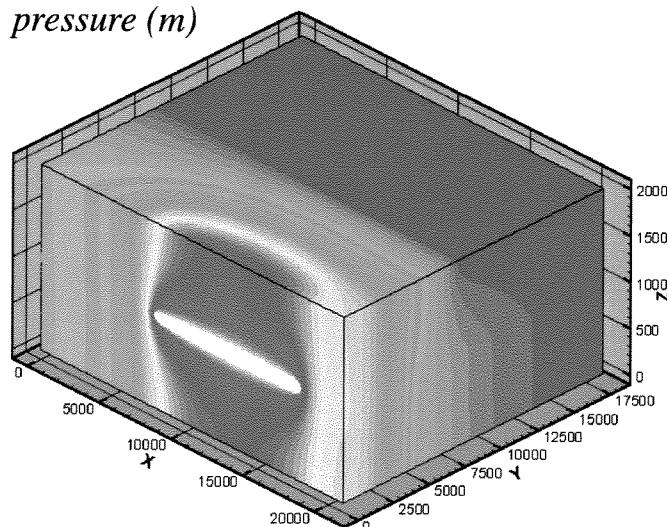
Basement head: 1500

Lithology	Kxx	Kyy	Kzz	$\phi$	Xkk
Verrucano	0.0309	0.0309	0.01	0.03	1E-7
Flysch	0.15	0.15	0.15	0.06	1E-6
LK	6	0.5	0.5	0.05	1E-4
Foot. carb.	0.01	0.01	0.005	0.03	1E-7
Hang. carb	0.03091	0.03091	0.0309	0.04	1E-6



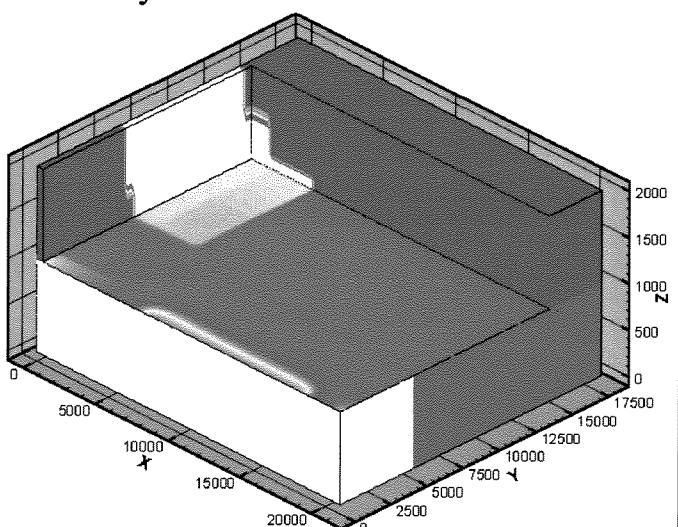
Hydraulic  
pressure (m)

Head: 0 246.154 492.308 738.462 984.615



after  
25000 years

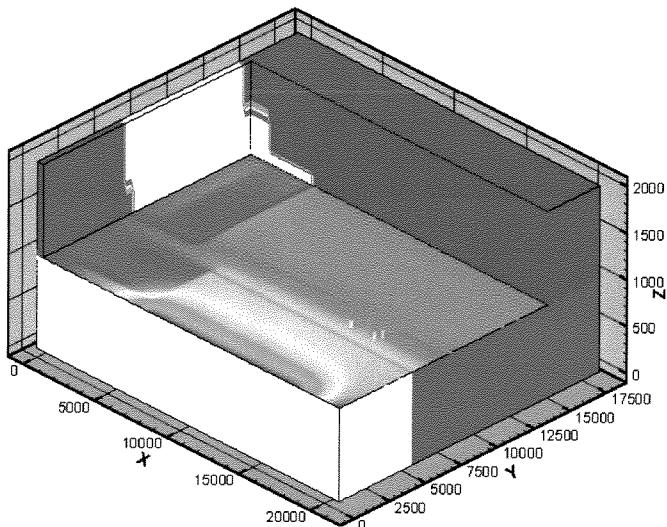
Calcite  $\delta^{18}\text{O}$  (SMOW)



after  
100000 years

Calcite  $\delta^{18}\text{O}$  (SMOW)

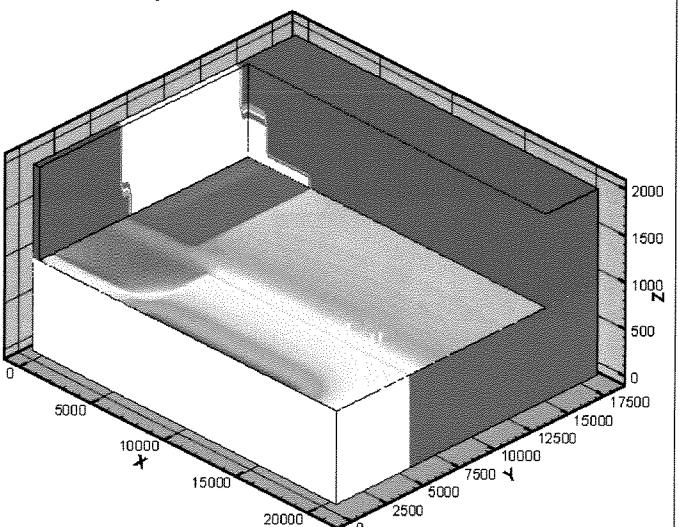
V7: 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24



after  
500000 years

Calcite  $\delta^{18}\text{O}$  (SMOW)

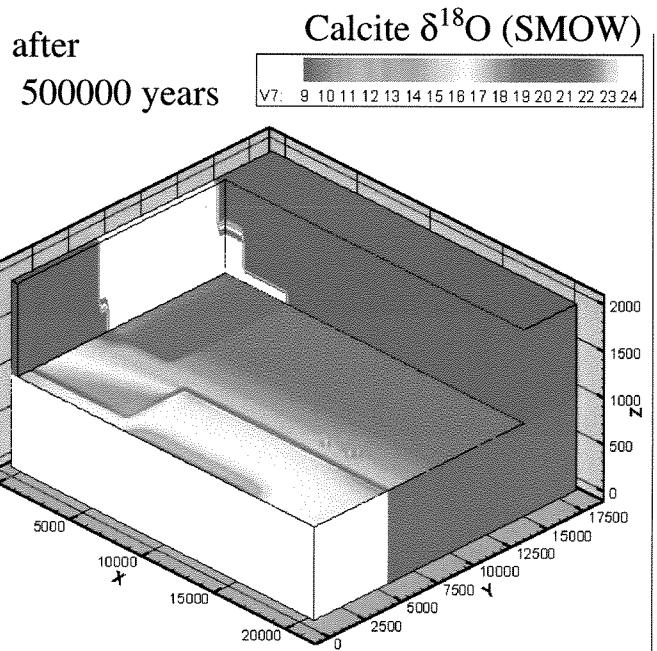
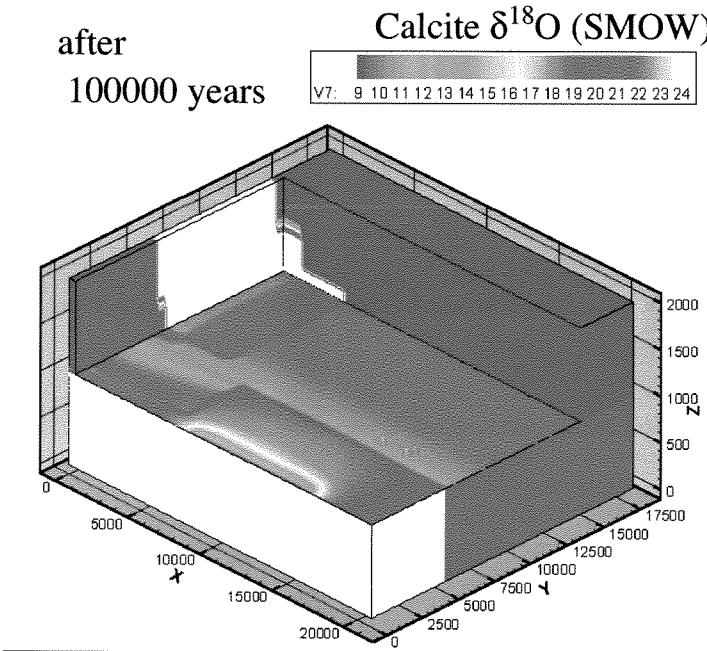
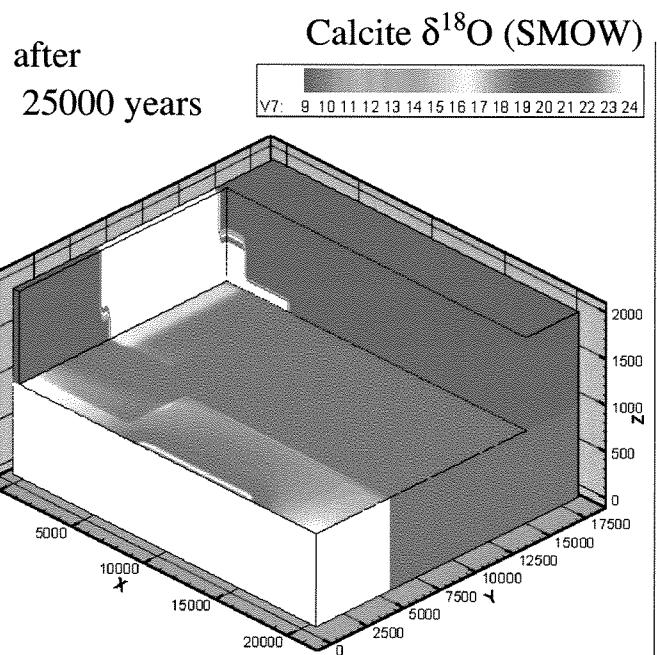
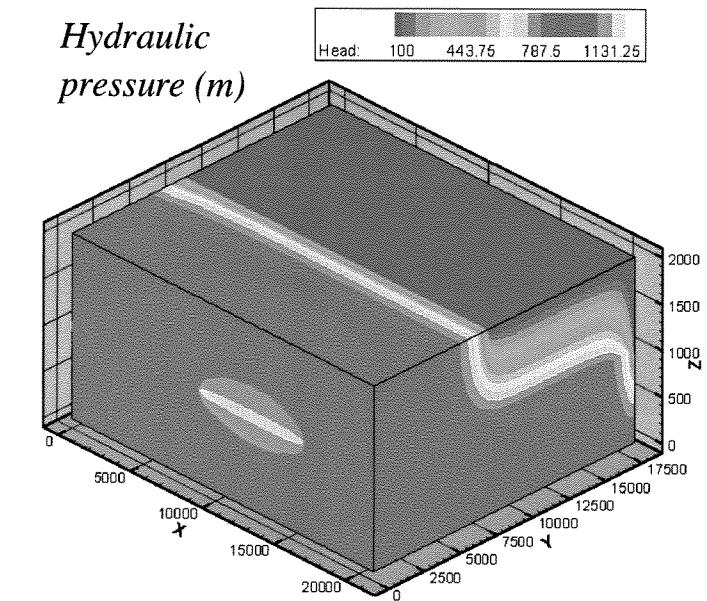
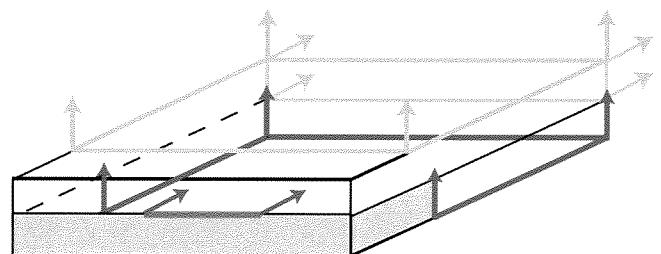
V7: 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24



# S24

Basement head: 1200  
Flysch head: 900

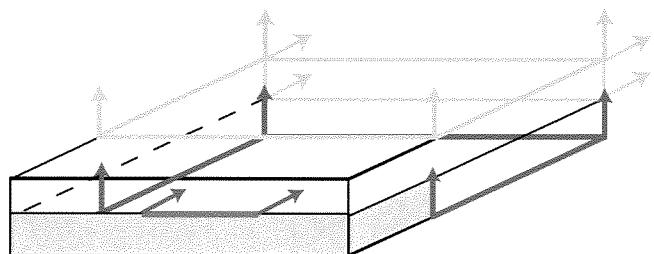
Lithology	Kxx	Kyy	Kzz	$\emptyset$	Xkk
Verrucano	0.0309	0.0309	0.01	0.03	1E-7
Flysch	0.15	0.15	0.15	0.06	1E-6
LK	6	0.5	0.5	0.05	1E-4
Foot. carb.	0.01	0.01	0.005	0.03	1E-7
Hang. carb.	0.03091	0.03091	0.0309	0.04	1E-6



# S25

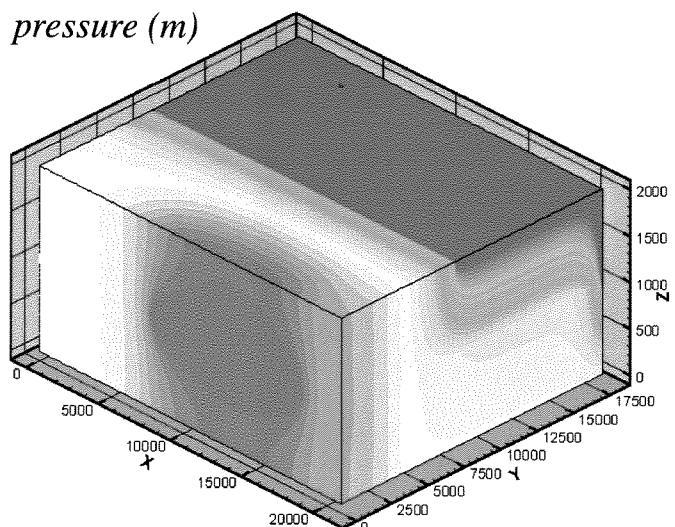
Basement head: 1500  
Flysch head: 900

Lithology	Kxx	Kyy	Kzz	$\emptyset$	Xkk
Verrucano	0.0309	0.0309	0.01	0.03	1E-6
Flysch	0.15	0.15	0.15	0.06	1E-6
LK	6	0.5	0.5	0.05	1E-4
Foot. carb.	0.01	0.01	0.005	0.03	1E-7
Hang. carb	0.03091	0.03091	0.0309	0.04	1E-6



Hydraulic  
pressure (m)

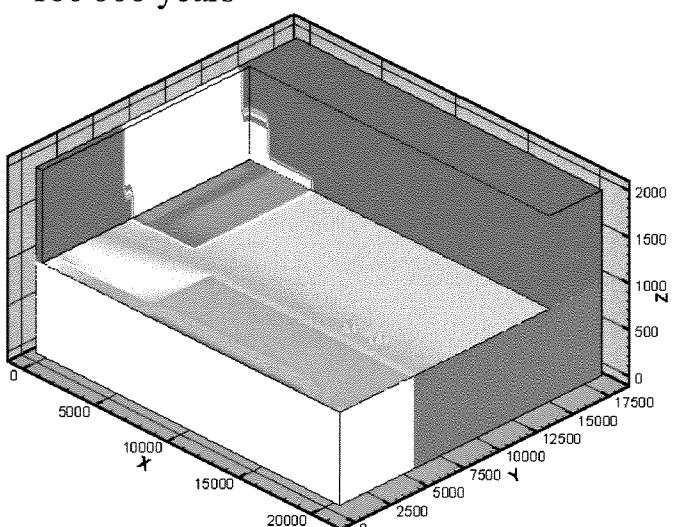
Head: 100 365.517 631.034 896.552 1162.07



after  
100'000 years

Calcite  $\delta^{18}\text{O}$  (SMOW)

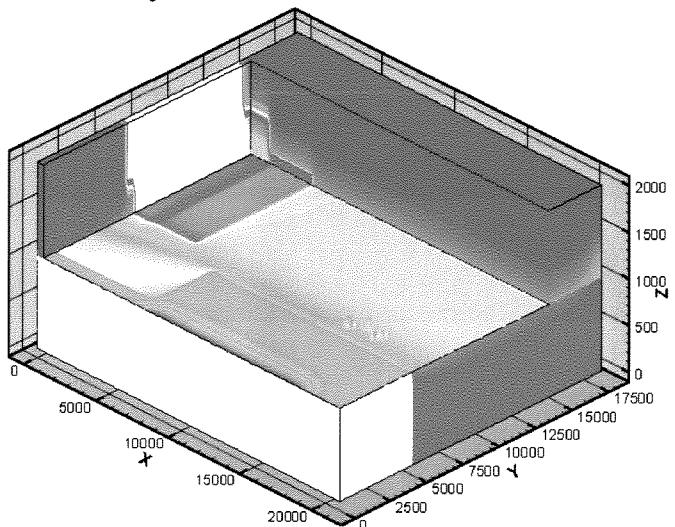
V7: 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24



after  
500'000 years

Calcite  $\delta^{18}\text{O}$  (SMOW)

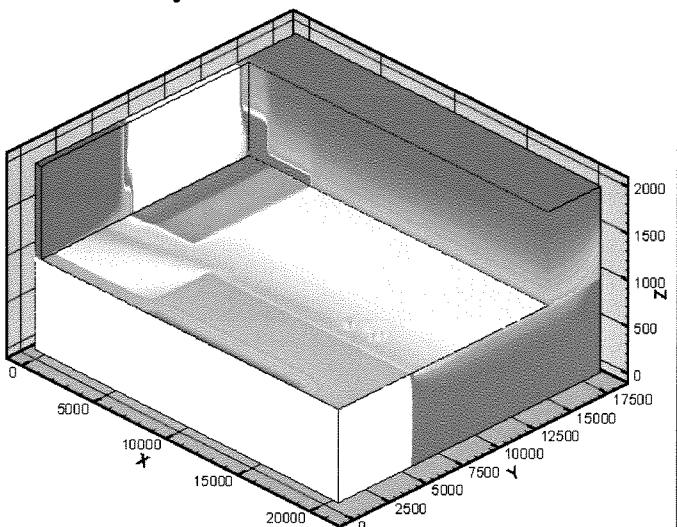
V7: 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24



after  
1'000'000 years

Calcite  $\delta^{18}\text{O}$  (SMOW)

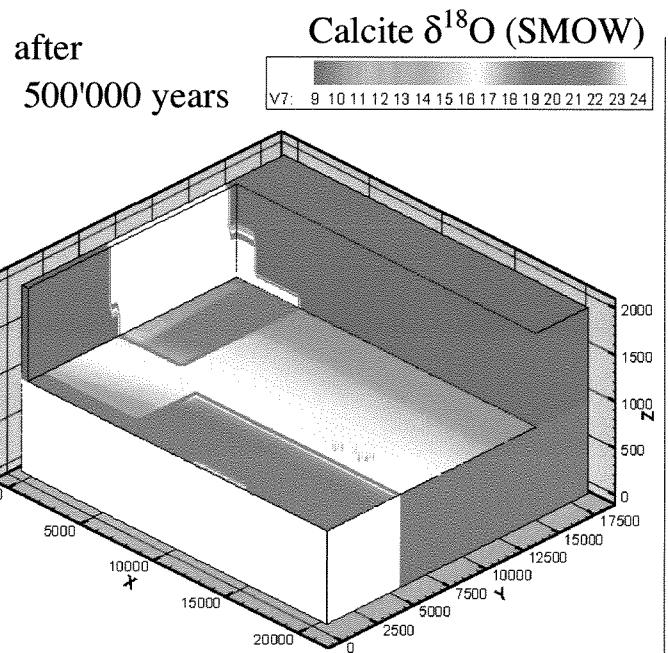
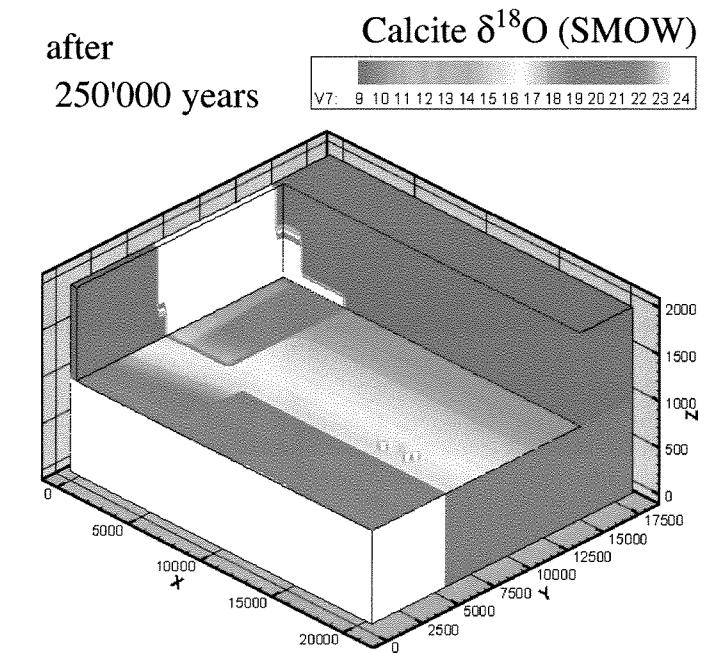
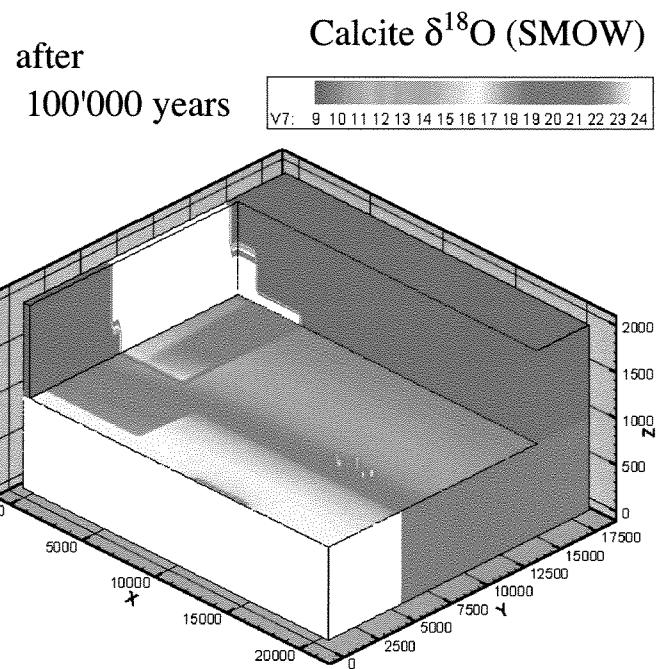
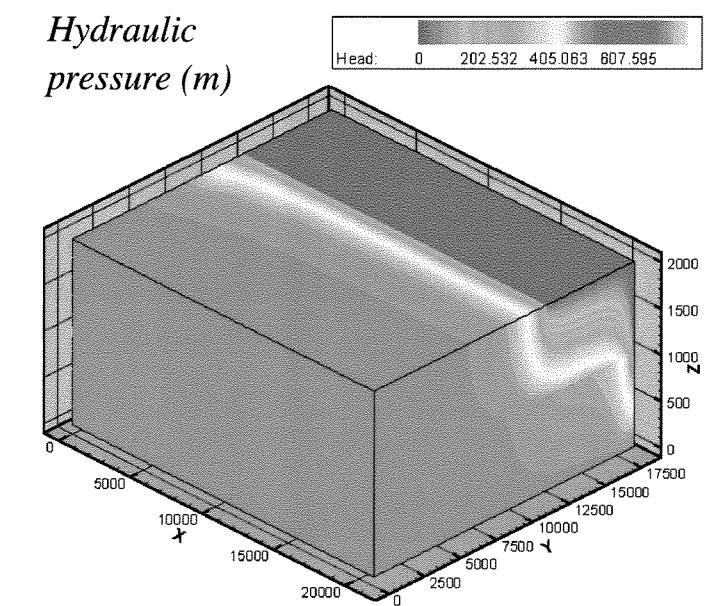
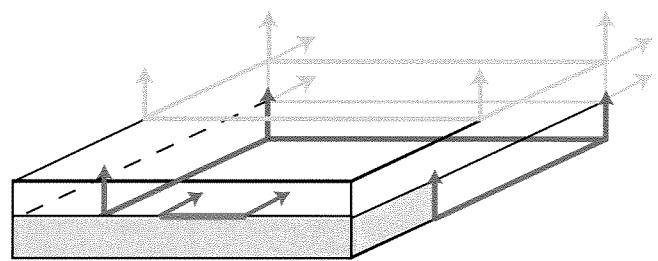
V7: 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24



# S32

Basement head: 500  
Flysch head: 500

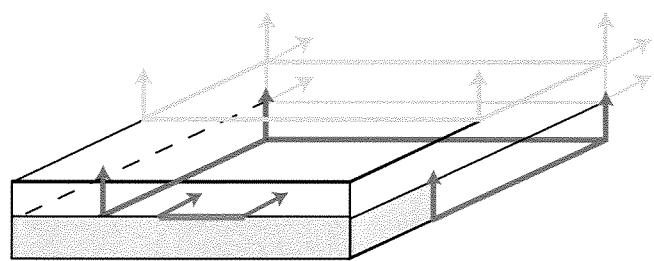
Lithology	Kxx	Kyy	Kzz	$\emptyset$	Xkk
Verrucano	0.0309	0.0309	0.01	0.03	1E-7
Flysch	0.15	0.15	0.15	0.06	1E-6
LK	5	2	0.5	0.05	1E-4
Foot. carb.	0.02	0.02	0.005	0.03	1E-7
Hang. carb.	0.03091	0.03091	0.0309	0.04	1E-6



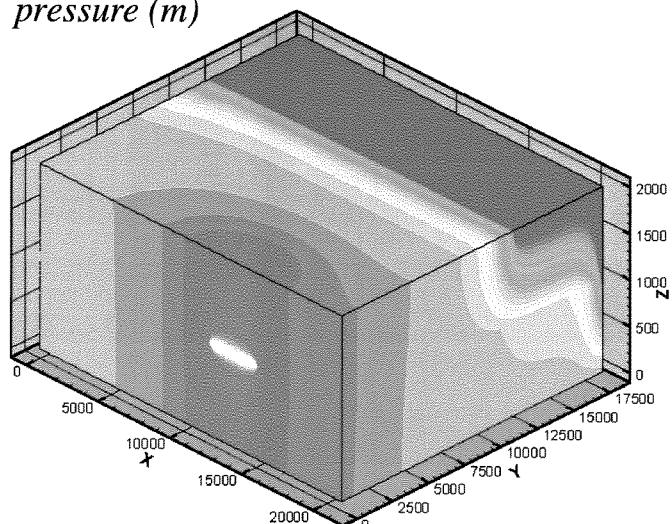
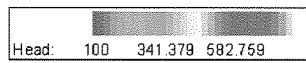
# S34

Basement head: 900  
Flysch head: 500

Lithology	Kxx	Kyy	Kzz	$\emptyset$	Xkk
Verrucano	0.0309	0.0309	0.01	0.03	1E-7
Flysch	0.15	0.15	0.15	0.06	1E-6
LK	4	0.5	0.5	0.08	1E-4
Foot. carb.	0.02	0.02	0.005	0.03	1E-7
Hang. carb.	0.03091	0.03091	0.0309	0.04	1E-6

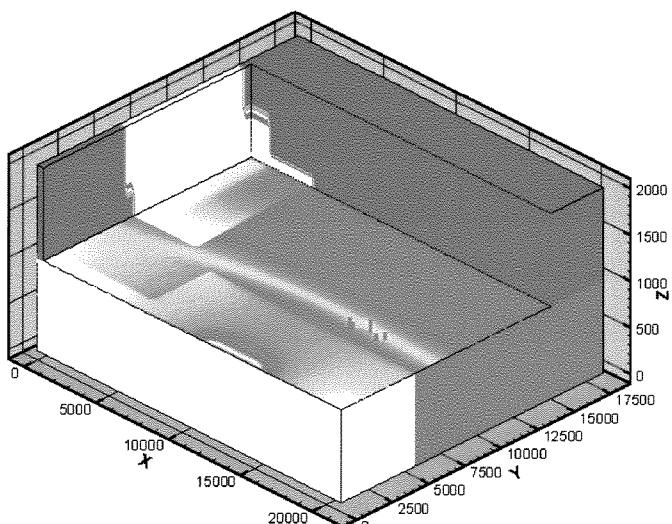


Hydraulic pressure (m)

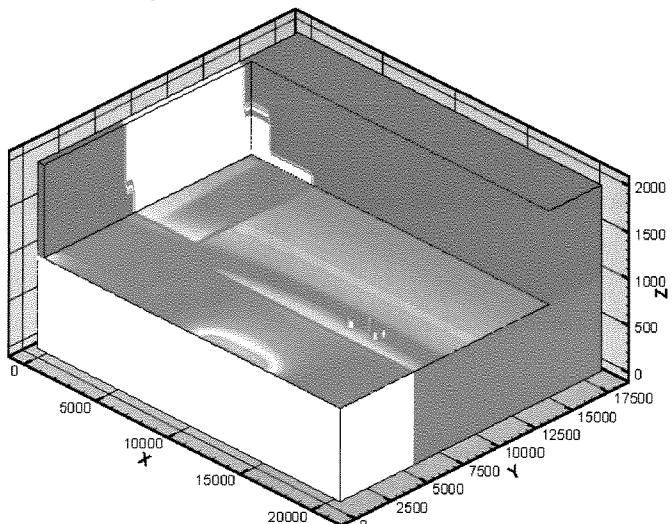
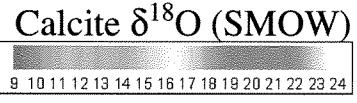


after  
25'000 years

Calcite  $\delta^{18}\text{O}$  (SMOW)

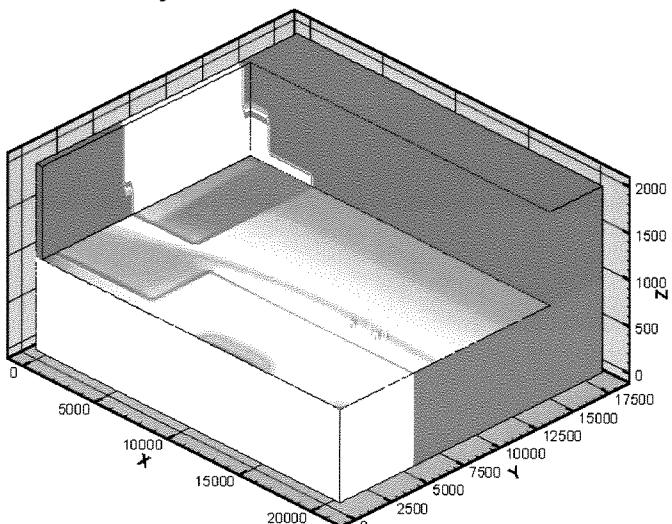


after  
100'000 years



after  
500'000 years

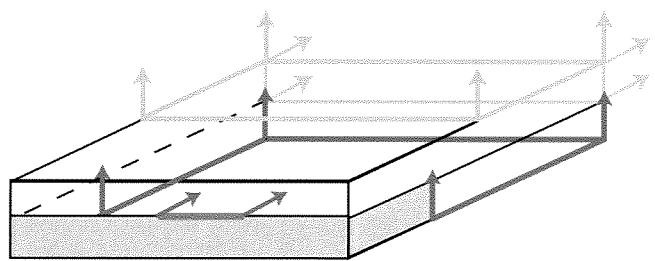
Calcite  $\delta^{18}\text{O}$  (SMOW)  
V7: 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24



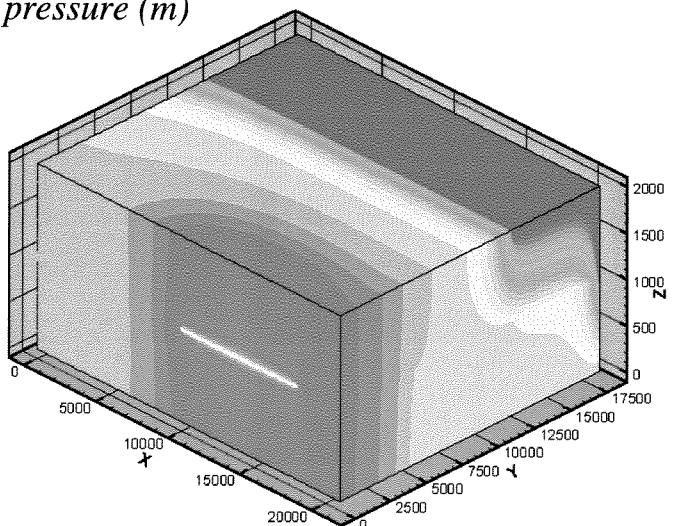
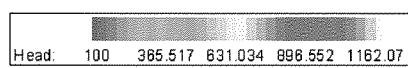
# S38

Basement head: 1200  
Flysch head: 700

Lithology	Kxx	Kyy	Kzz	$\emptyset$	Xkk
Verrucano	0.0309	0.0309	0.01	0.03	1E-7
Flysch	0.15	0.15	0.15	0.06	1E-6
LK	6	0.5	0.5	0.05	1E-4
Foot. carb.	0.01	0.01	0.005	0.03	1E-7
Hang. carb.	0.03091	0.03091	0.0309	0.04	1E-6

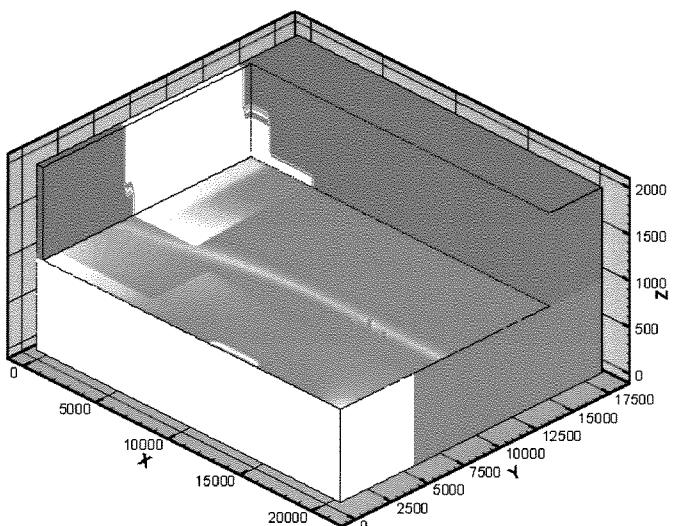


Hydraulic  
pressure (m)



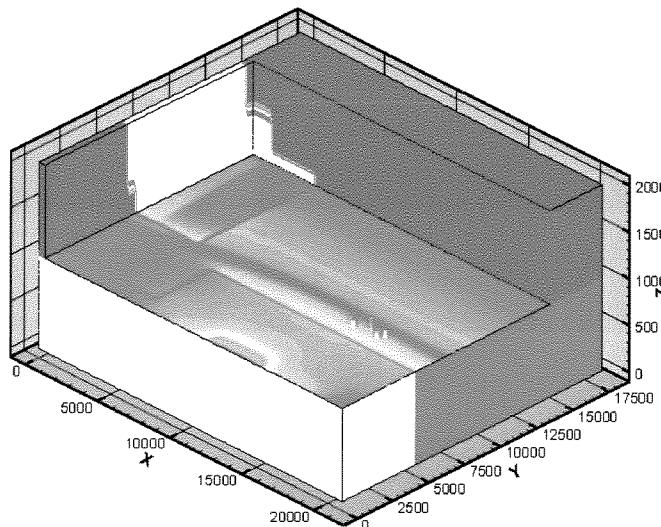
after  
25'000 years

Calcite  $\delta^{18}\text{O}$  (SMOW)



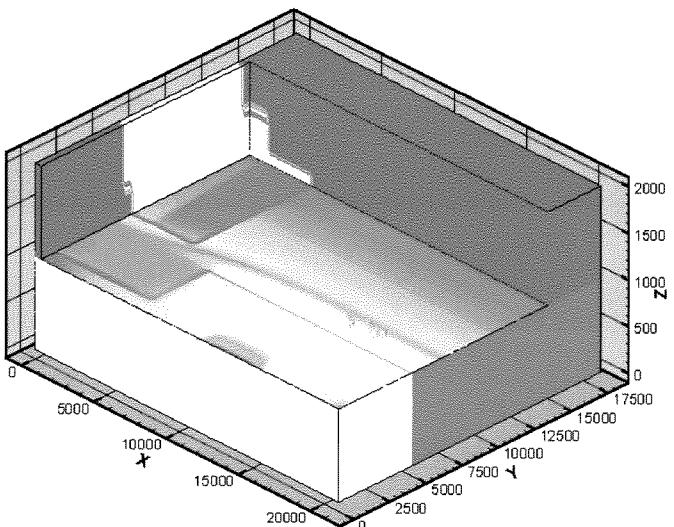
after  
100'000 years

Calcite  $\delta^{18}\text{O}$  (SMOW)



after  
250'000 years

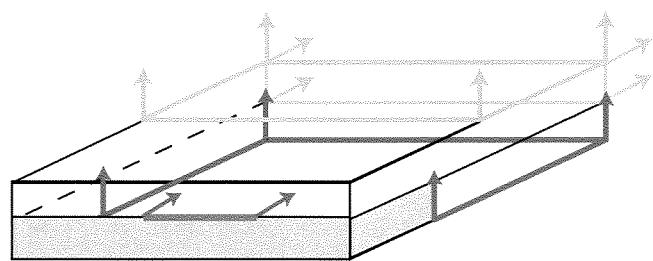
Calcite  $\delta^{18}\text{O}$  (SMOW)



# S66

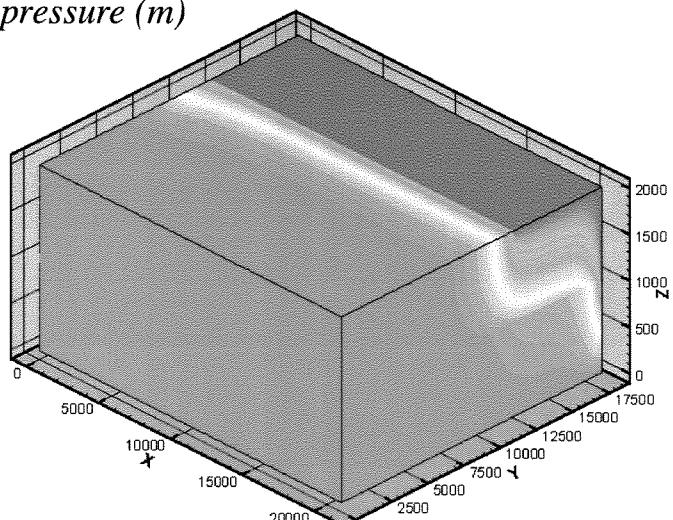
Basement head: 500  
Flysch head: 500

Lithology	Kxx	Kyy	Kzz	$\emptyset$	Xkk
Verrucano	0.0309	0.0309	0.01	0.03	1E-7
Flysch	0.15	0.15	0.15	0.06	1E-6
LK	2	2	2	0.05	1E-4
Foot. carb.	0.02	0.02	0.005	0.03	1E-7
Hang. carb.	0.03091	0.03091	0.0309	0.04	1E-6



Hydraulic pressure (m)

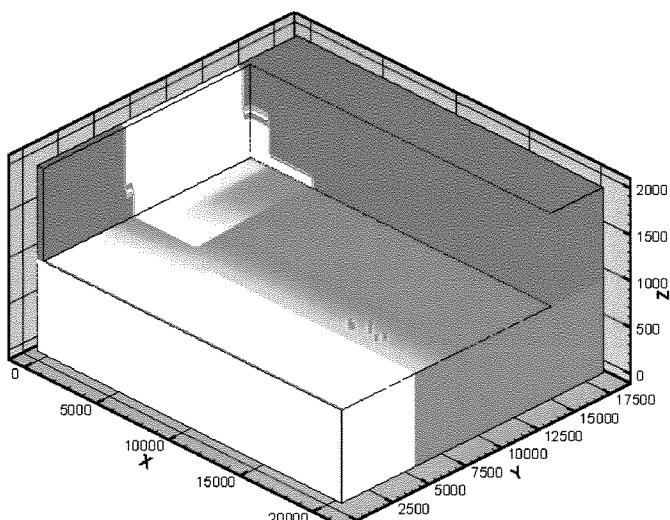
Head: 0 100 200 300 400 500 600 700 800



after  
25000 years

Calcite  $\delta^{18}\text{O}$  (SMOW)

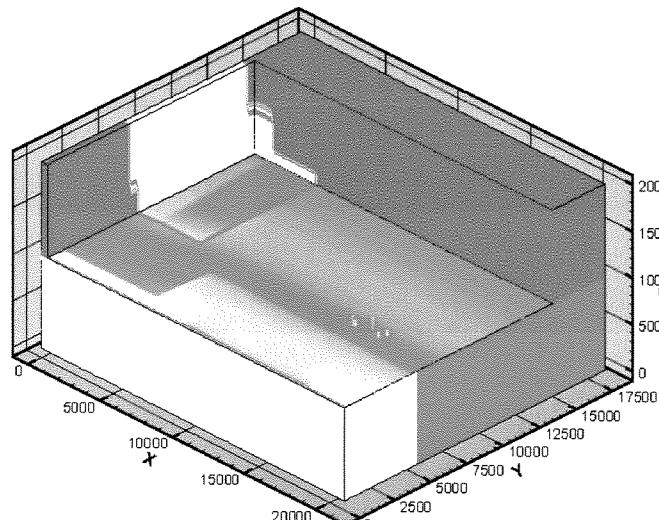
V7: 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24



after  
100000 years

Calcite  $\delta^{18}\text{O}$  (SMOW)

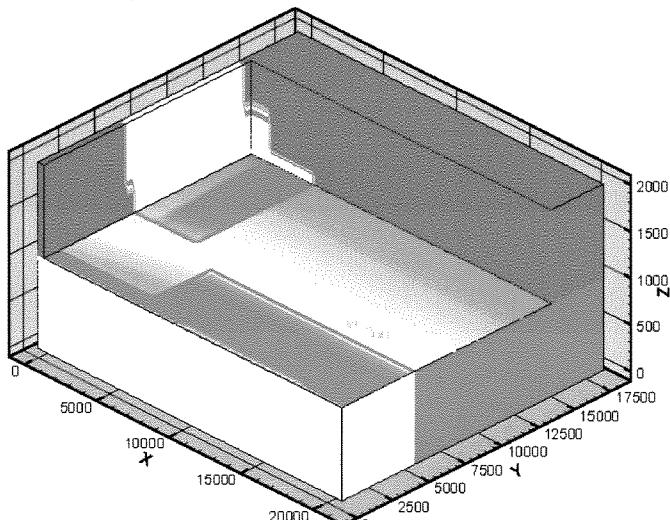
V7: 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24



after  
500000 years

Calcite  $\delta^{18}\text{O}$  (SMOW)

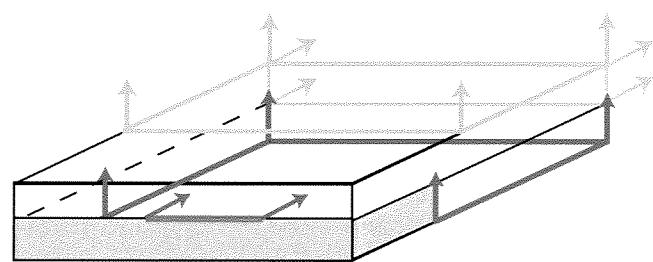
V7: 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24



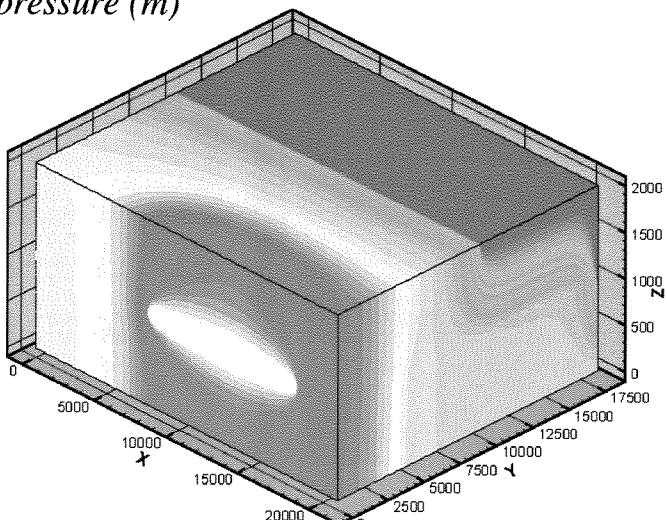
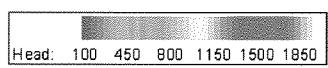
# S72

Basement head: 2500  
Flysch head: 900

Lithology	Kxx	Kyy	Kzz	$\emptyset$	Xkk
Verrucano	0.0309	0.0309	0.01	0.03	1E-7
Flysch	0.15	0.15	0.15	0.06	1E-6
LK	6	0.5	0.5	0.05	1E-4
Foot. carb.	0.01	0.01	0.005	0.03	1E-7
Hang. carb.	0.03091	0.03091	0.0309	0.04	1E-6

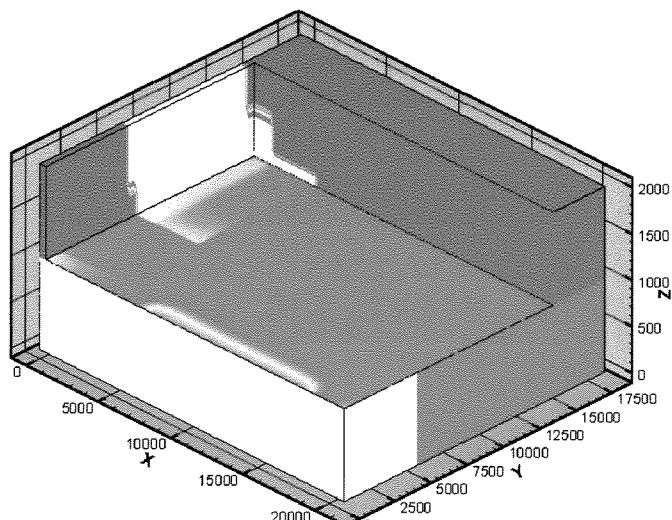
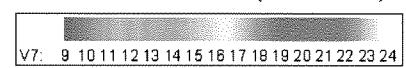


Hydraulic pressure (m)



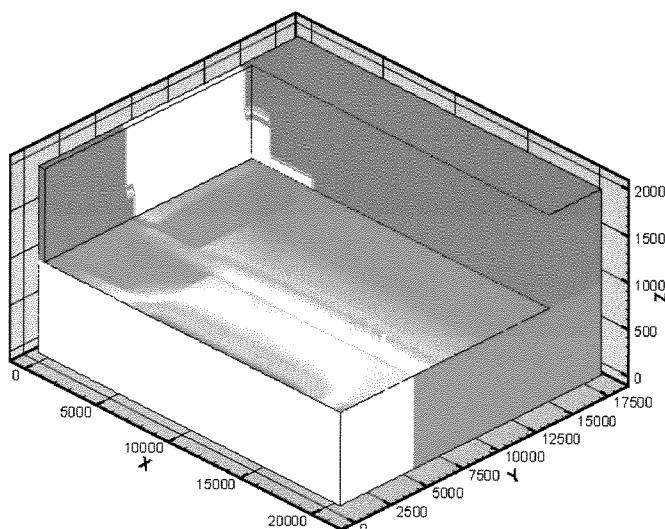
after  
25000 years

Calcite  $\delta^{18}\text{O}$  (SMOW)



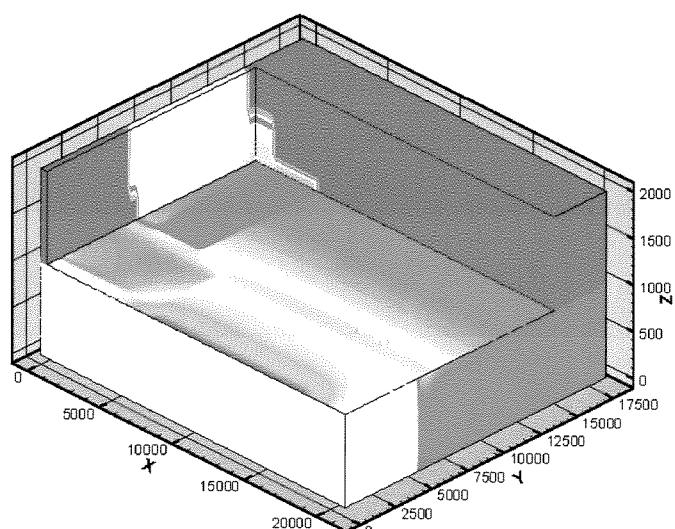
after  
100000 years

Calcite  $\delta^{18}\text{O}$  (SMOW)



after  
1'000'000 years

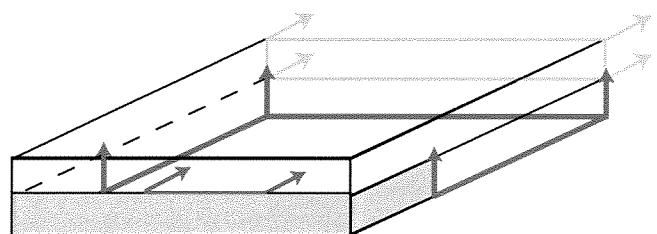
Calcite  $\delta^{18}\text{O}$  (SMOW)



# S76

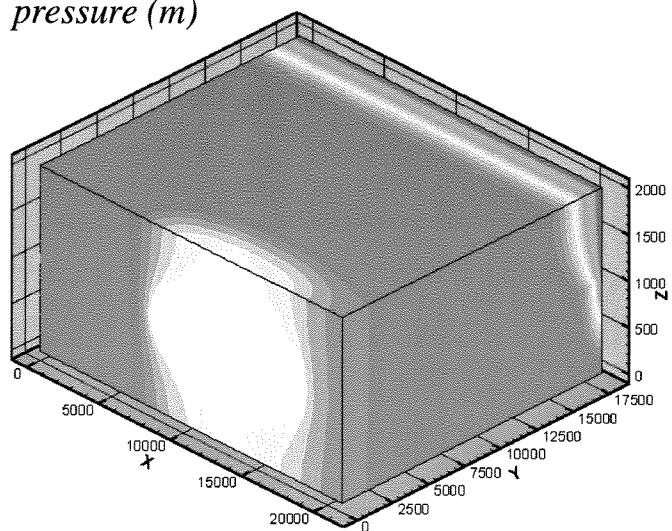
Basement head: 1500  
Flysch head: 900

Lithology	Kxx	Kyy	Kzz	$\emptyset$	Xkk
Verrucano	0.0309	0.0309	0.01	0.03	1E-7
Flysch	0.15	0.15	0.15	0.06	1E-6
LK	6	0.5	0.5	0.05	1E-4
Foot. carb.	0.01	0.01	0.005	0.03	1E-7
Hang. carb.	0.03091	0.03091	0.0309	0.04	1E-6



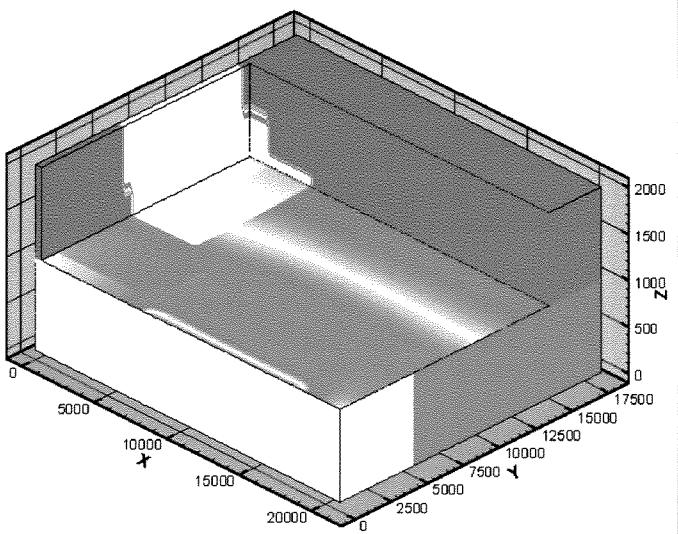
Hydraulic pressure (m)

Head: 100 385.517 631.034 896.552 1162.07



after  
25000 years

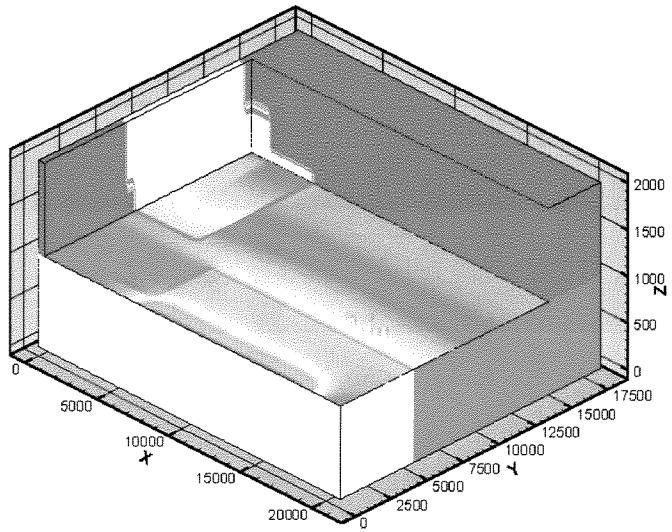
Calcite  $\delta^{18}\text{O}$  (SMOW)



after  
100000 years

Calcite  $\delta^{18}\text{O}$  (SMOW)

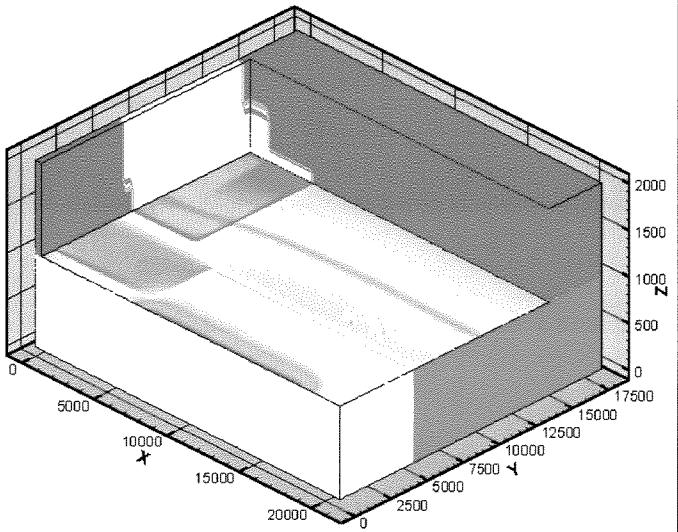
V7: 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24



after  
500000 years

Calcite  $\delta^{18}\text{O}$  (SMOW)

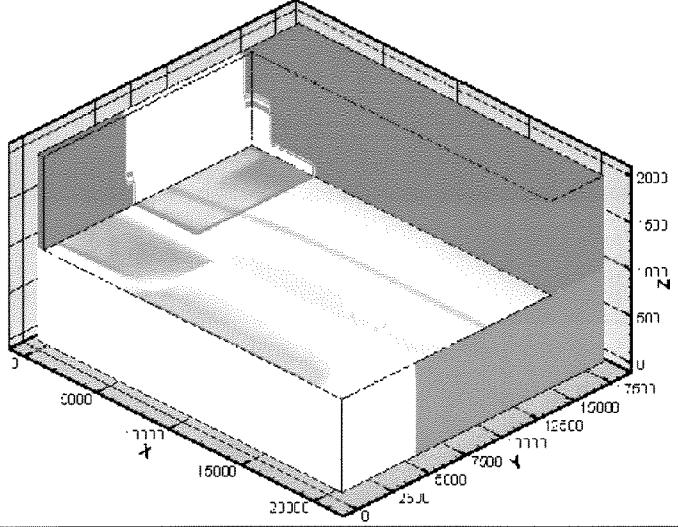
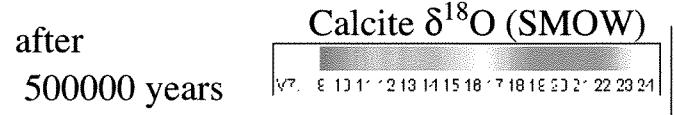
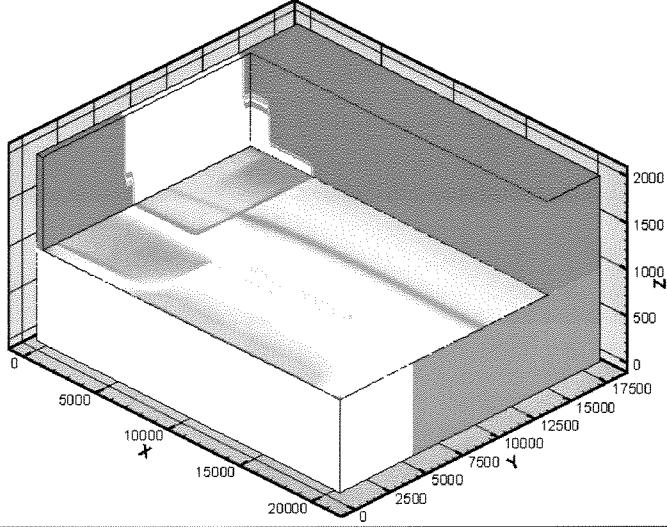
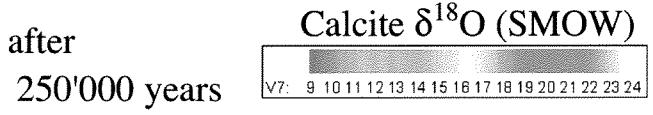
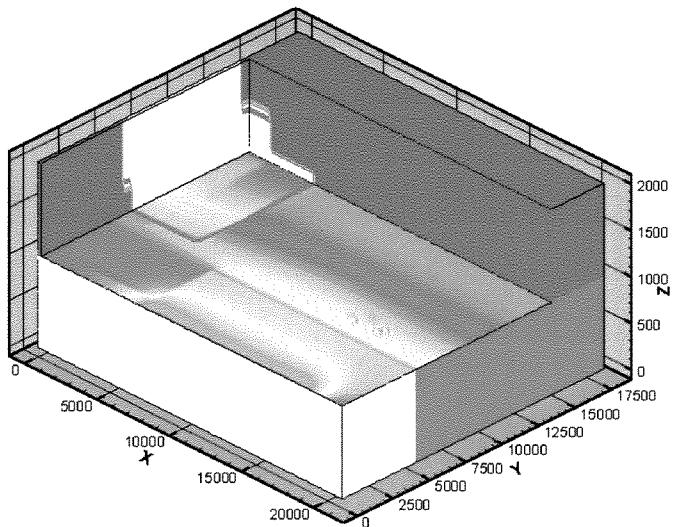
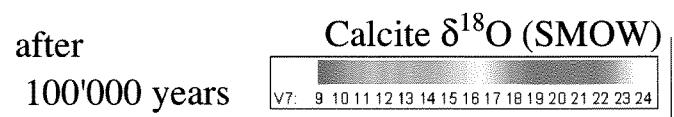
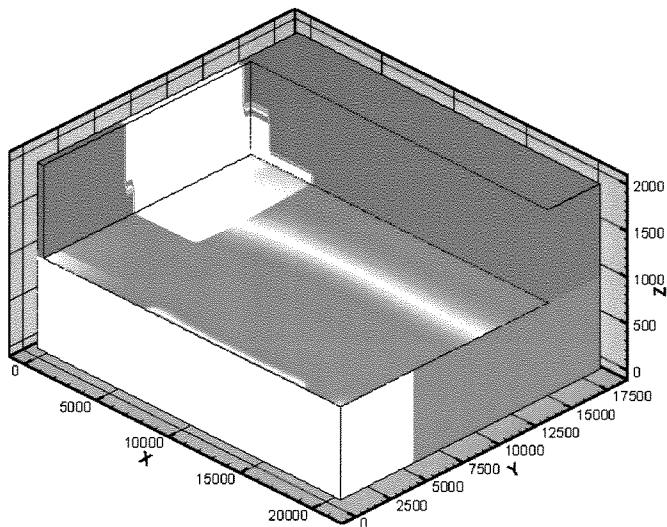
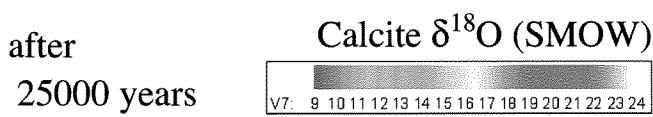
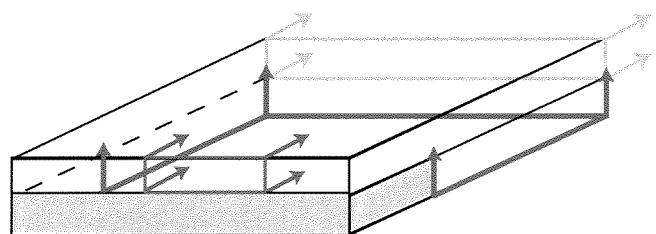
V7: 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24



# S77

Basement head: 1500  
Flysch head: 900

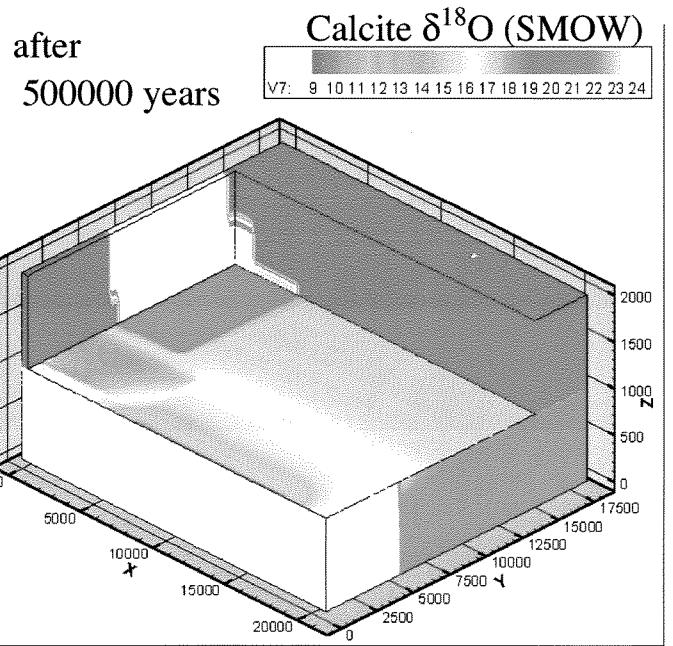
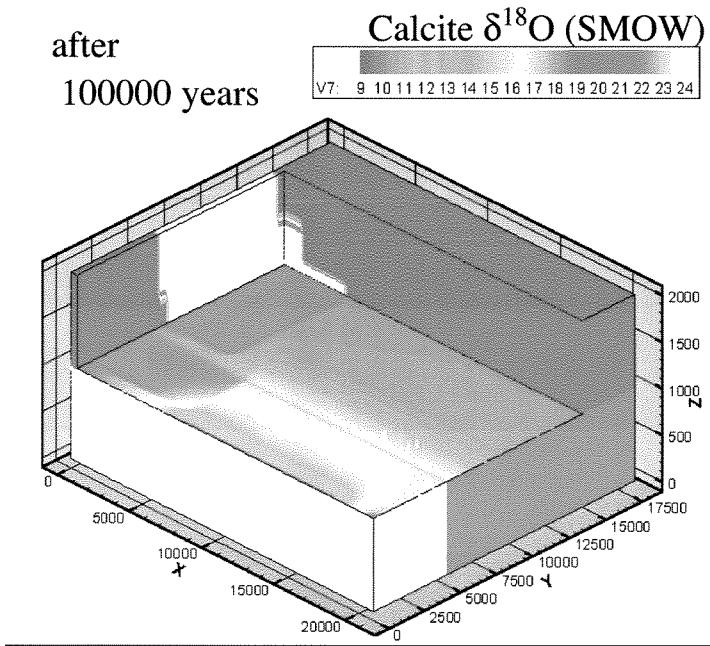
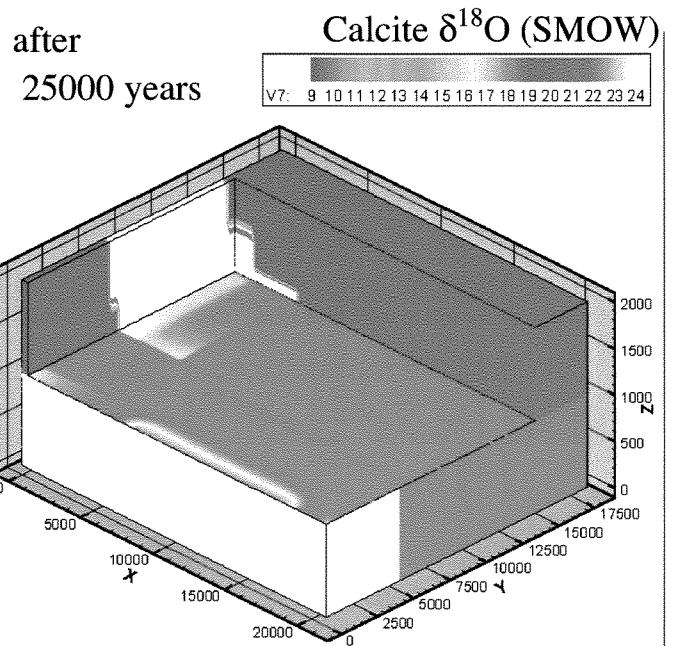
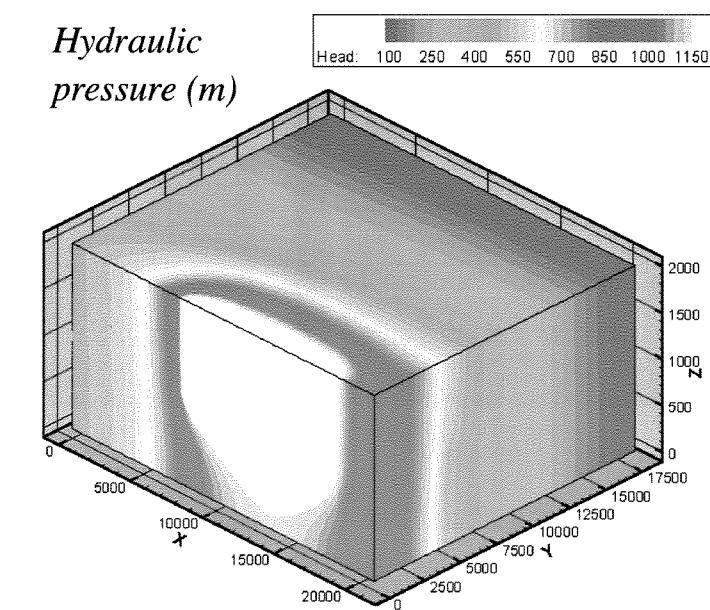
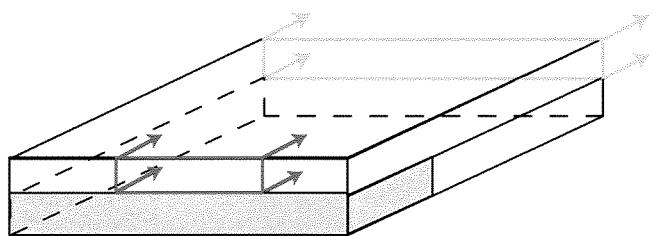
Lithology	Kxx	Kyy	Kzz	$\emptyset$	Xkk
Verrucano	0.0309	0.0309	0.01	0.03	1E-7
Flysch	0.15	0.15	0.15	0.06	1E-6
LK	6	0.5	0.5	0.05	1E-4
Foot. carb.	0.01	0.01	0.005	0.03	1E-7
Hang. carb.	0.03091	0.03091	0.0309	0.04	1E-6



# S78

Basement head: 1500  
Flysch head: 900

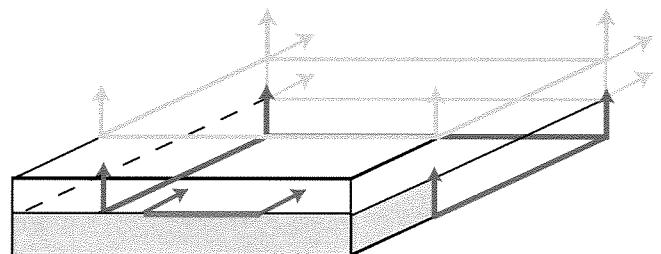
Lithology	Kxx	Kyy	Kzz	$\emptyset$	Xkk
Verrucano	0.0309	0.0309	0.01	0.03	1E-7
Flysch	0.15	0.15	0.15	0.06	1E-6
LK	6	0.5	0.5	0.05	1E-4
Foot. carb.	0.01	0.01	0.005	0.03	1E-7
Hang. carb	0.03091	0.03091	0.0309	0.04	1E-6



# S81

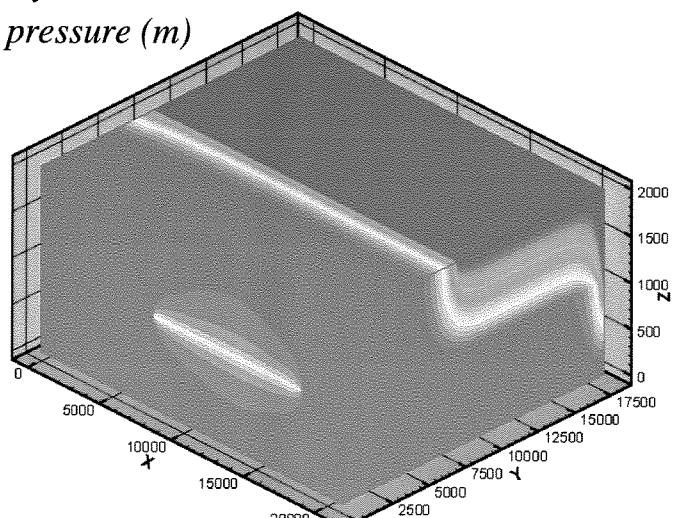
Basement head: 1200  
Flysch head: 900

Lithology	Kxx	Kyy	Kzz	$\emptyset$	Xkk
Verrucano	0.0309	0.0309	0.01	0.03	1E-7
Flysch	0.15	0.15	0.15	0.06	1E-6
LK	6	0.5	0.5	0.05	1E-4
Foot. carb.	0.01	0.01	0.005	0.03	1E-7
Hang. carb	0.03091	0.03091	0.0309	0.04	1E-6



Hydraulic pressure (m)

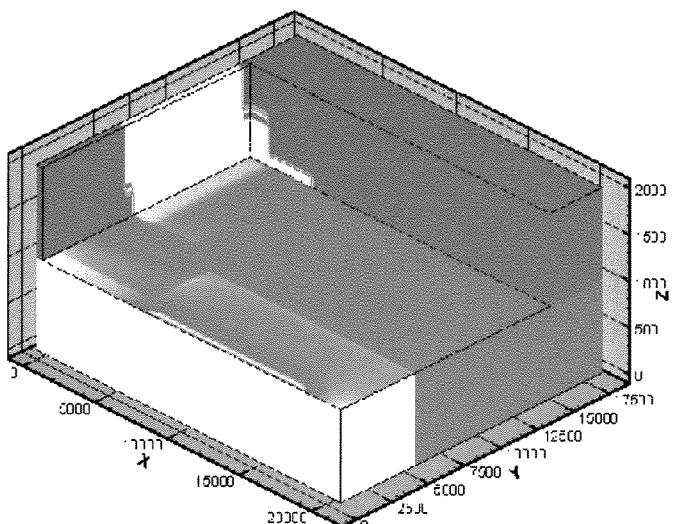
Head: 100 479.31 858.621



after  
25000 years

Calcite  $\delta^{18}\text{O}$  (SMOW)

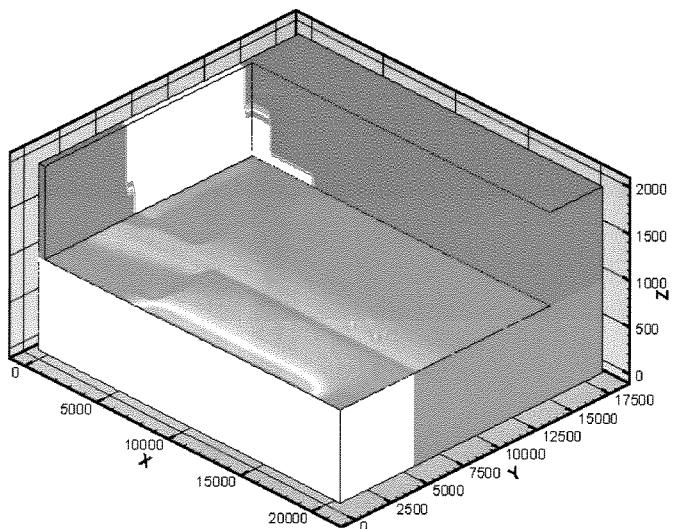
V7: 8 10 11 12 13 14 15 16 7 10 11 23 22 20 24



after  
100000 years

Calcite  $\delta^{18}\text{O}$  (SMOW)

V7: 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24



after  
500000 years

Calcite  $\delta^{18}\text{O}$  (SMOW)

V7: 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

