

The impact of soil salinization on ground water chemistry (Zhang Luqianxue)

Introduction

Modeling

Code for rainwater evaporation

```
TITLE Rainwater evaporation from Ladouche2009
SOLUTION 1  Precipitation of rainfall in the South France
    units          ueq/L
    pH              6.2
    Ca              163.3
    Mg              103.6
    Na              419.5
    K               13.9
    Cl              572.8
    C(4)            188.2   as HC03   C02(g)   -2.2
    S(6)            98.5
    N(-3)           35.5
    N(5)            42.8
    Br              0.195
    B               1.4616
    Sr              0.0286
    Se              1.963

EQUILIBRIUM_PHASES 1  Equilibrate with Minerals and gas
    C02(g)          -0.7   #change from -0.7 to -3.4
    Calcite         0

SAVE solution 2
SELECTED_OUTPUT
    -file           EvpRWLadouche2009.txt
    -pH
    -molalities     Ca+2 Mg+2 Na+ K+ Cl- S04-2 NH4+ N03- Br- H3B03 Sr+2
HSe03- Se03-2 HC03- C03-2
    -saturation_indices  Calcite Gypsum Epsomite

END

TITLE Evaprate water
USE solution 2
REACTION 1 evaporation
    H2O            -1.0
    5.55 11.11 16.67 22.22 27.78 33.33 38.89 44.44 50.0 51.0 52.0 53.0 54.0
55.0 55.1 55.2 55.3 55.4 55.41 55.42 55.43 55.44 55.45 55.46 55.47 55.48
```

55.49 55.5 moles
SAVE solution 3

code for irrigation water evaporation

TITLE Irrigation water evaporation from Galazoulas2014
SOLUTION 1 Precipitation of rainfall in the Greece

	units	mg/L
temp		22.4
pH		7.1
Ca		513.2
Mg		140.5
Na		279.1
K		4.1
Cl		1619
C(4)		198 as HC03
S(6)		129.5
N(5)		1.2
Sr		2.3571
As		0.0055
Co	0.0005	charge
Cr	0.0245	
Li	0.0219	
Mn	0.0023	
Zn	0.1871	
Se	0.0168	
Ni	0.003	
Fe	1.6406	

EQUILIBRIUM_PHASES 1 Equilibrate with Minerals and gas

CO2(g)	-0.7
Calcite	0

SAVE solution 2

SELECTED_OUTPUT

-file Openme.txt
-pH

-molalities Ca+2 Mg+2 Na+ K+ Cl- S04-2 NH4+ N03- Br- H3B03 Sr+2
HSe03- Se03-2 HC03- C03-2 HAs04-2 H2As04- Co+2 Cr(OH)2+ Cr(OH)+2 Cr(OH)3
Fe+2 FeS04 Fe(OH)2+ Fe(OH)3 Fe(OH)4- Li+ Mn+2 Ni+2 HSe03- Sr+2 Zn+2
-saturation_indices Calcite Gypsum Epsomite

END

TITLE Evaprate water

USE solution 2

REACTION 1 evaporation

H20 -1.0

5.55 11.11 16.67 22.22 27.78 33.33 38.89 44.44 50 51 52 53 54 55 55.1
55.2 55.3 55.31 55.32 55.33 55.34 55.35 55.36 55.37 55.38 55.39 55.4 moles

SAVE solution 3

Result

Rainwater

comparisontraceladouche2009.xlsx

Irrigation water

comparisontracegalazoulas2014.xlsx

raw data:

tracegalazoulas2014.xlsx

Source:

galazoulas2014.pdf

Structure

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