Grondwaterstromen in basalten en hooggelegen natuurgebieden; voorbeelden uit Idaho, IJsland en Ecuador

12-mei-2016 Roel Dijksma

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aandachtpunten

- Het onderzoek
- Positie onderzoek binnen WUR
- Samenwerking
- Financiering
- Do’s en Dont’s

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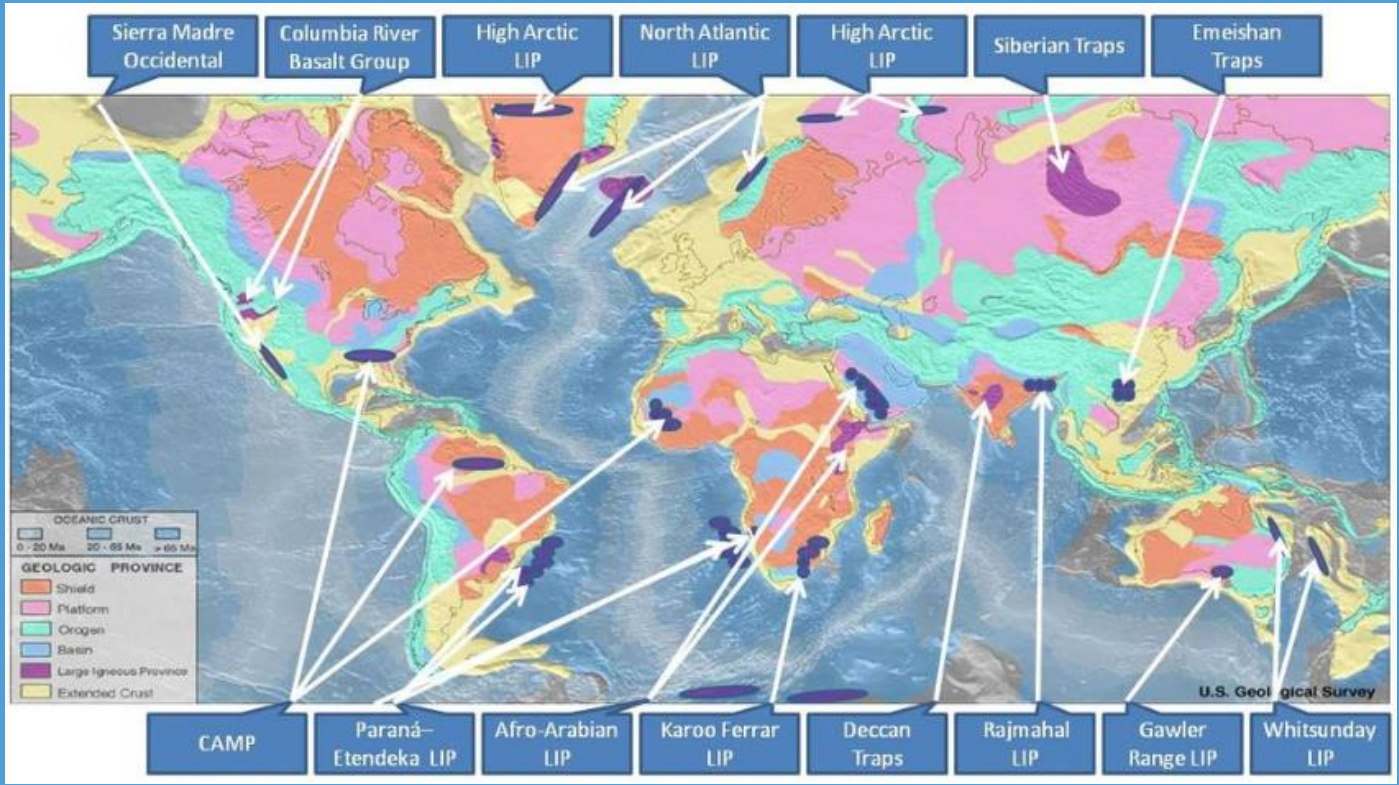
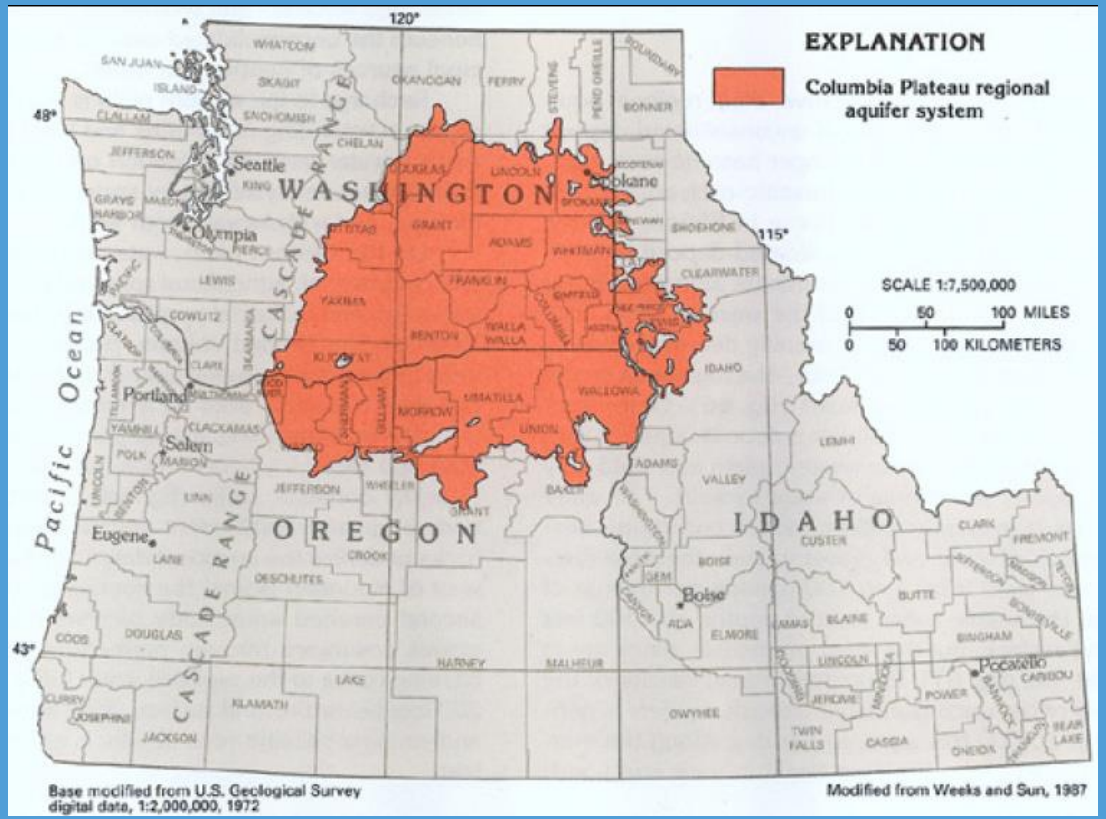
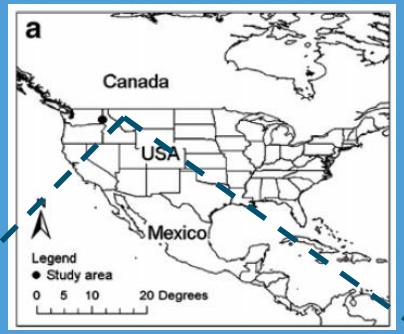
Topic 1: grondwater in flood basalts

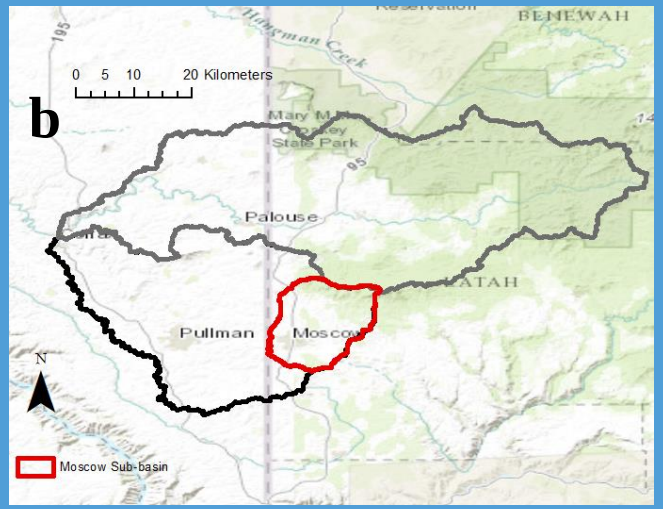


Columbia River Basalt Group



Columbia River Basalt Group





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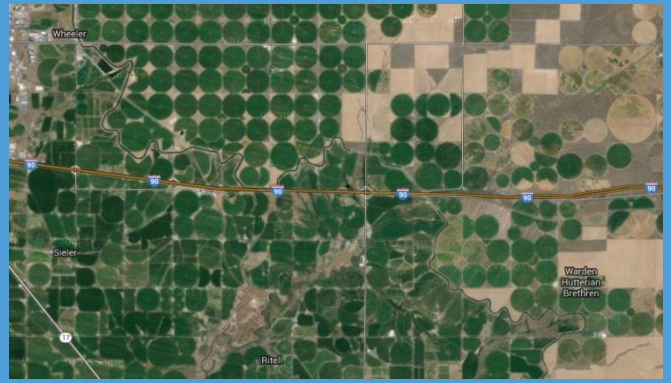
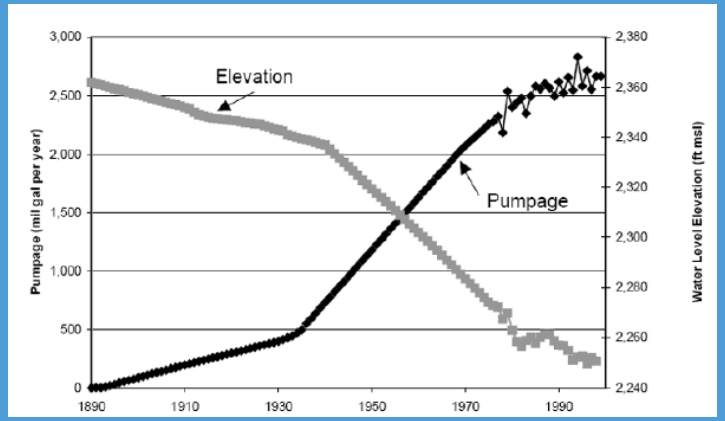
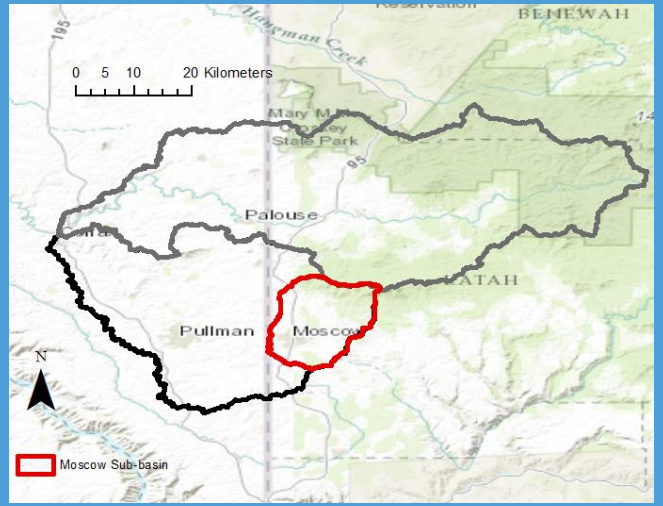
Columbia River Basalt Group







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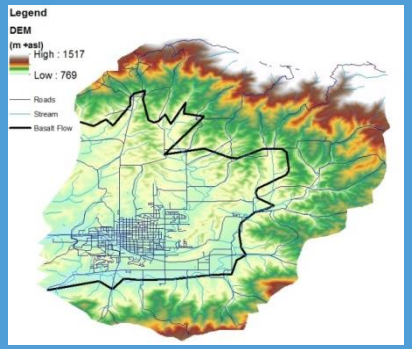
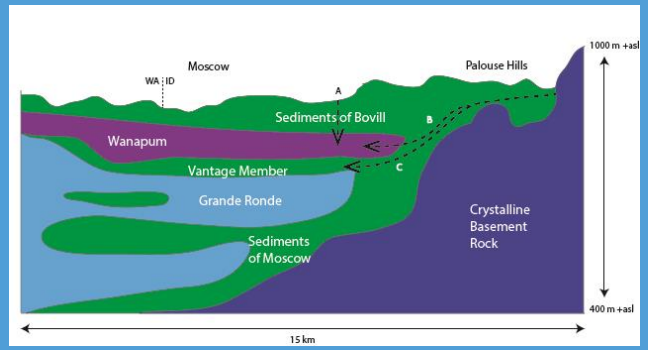
Hydrogeologie

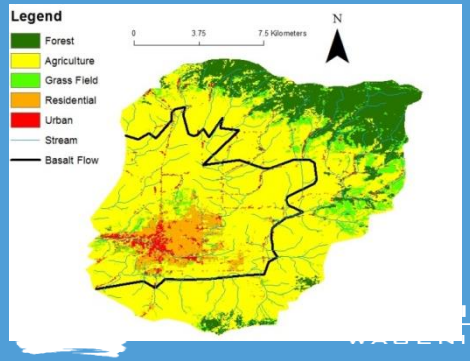
Hoogtekaart



Geologische doorsnede

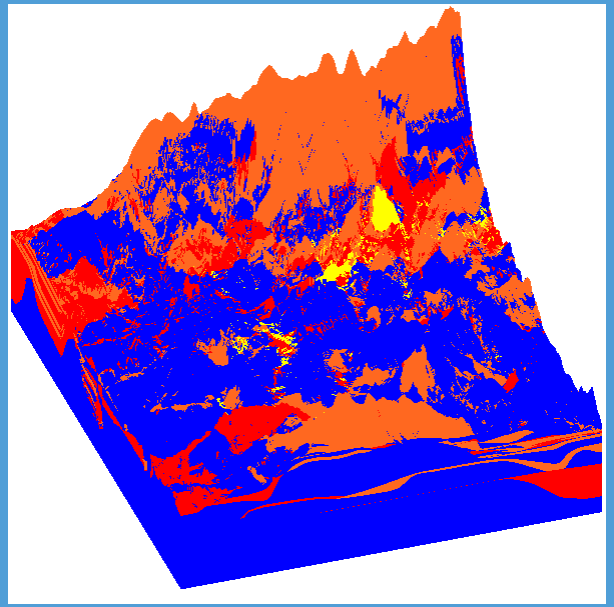


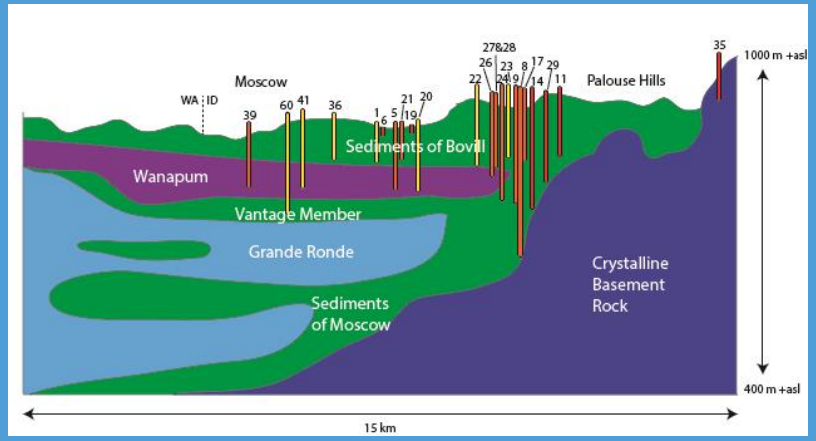
Landgebruik



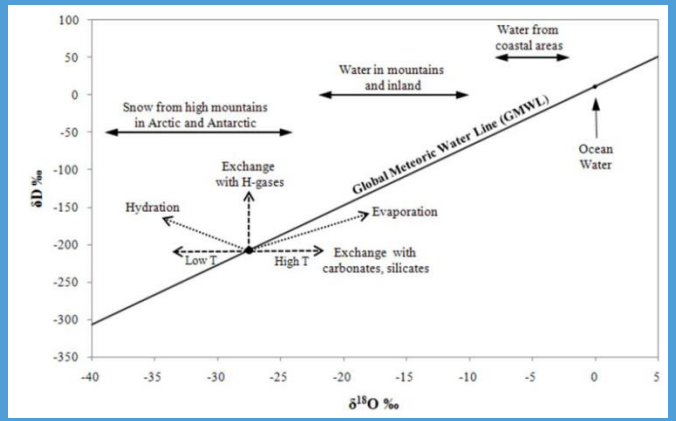
Methode

ModFlow





Isotopen



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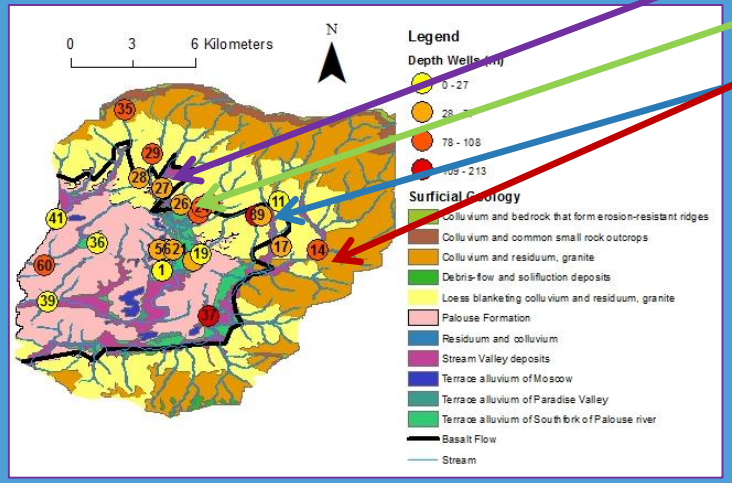
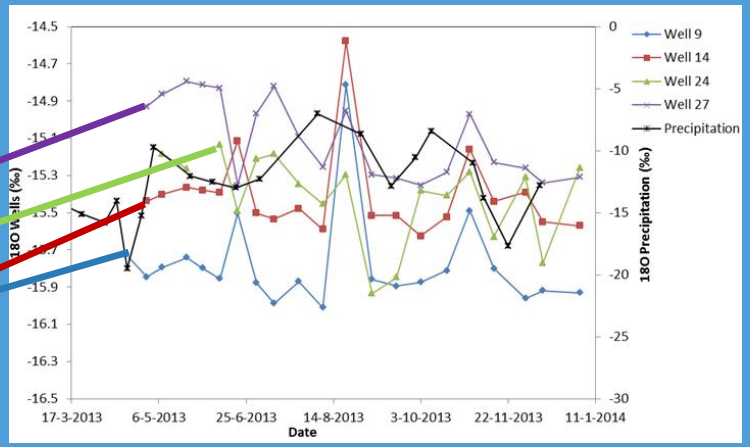
Analyse





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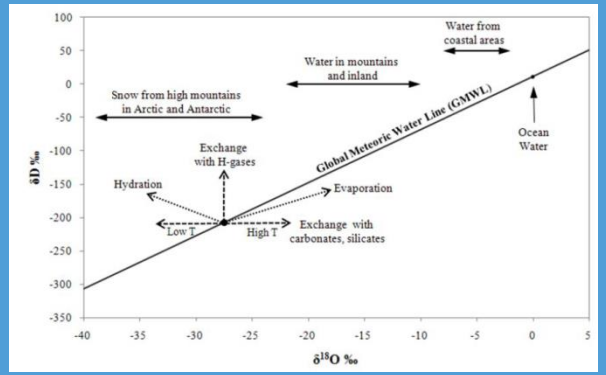
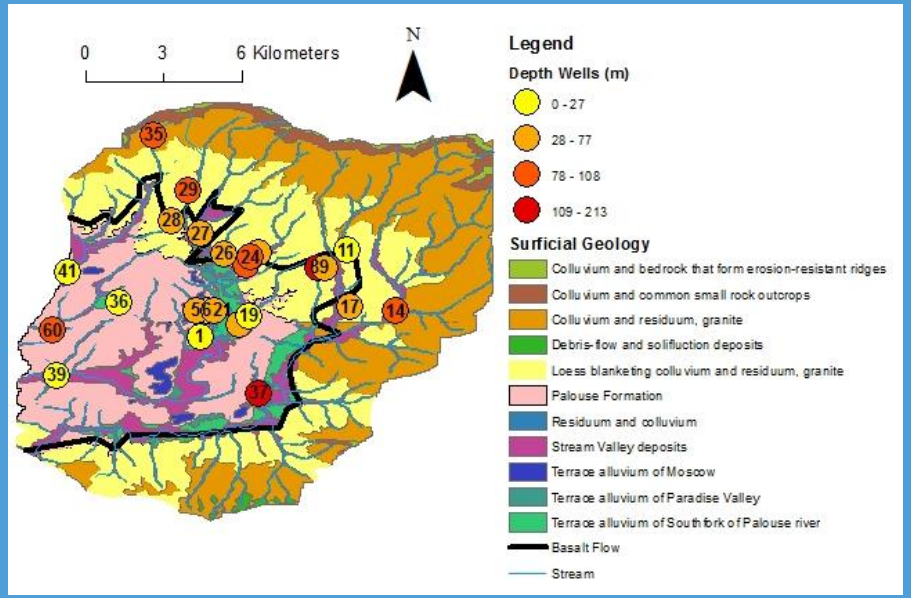
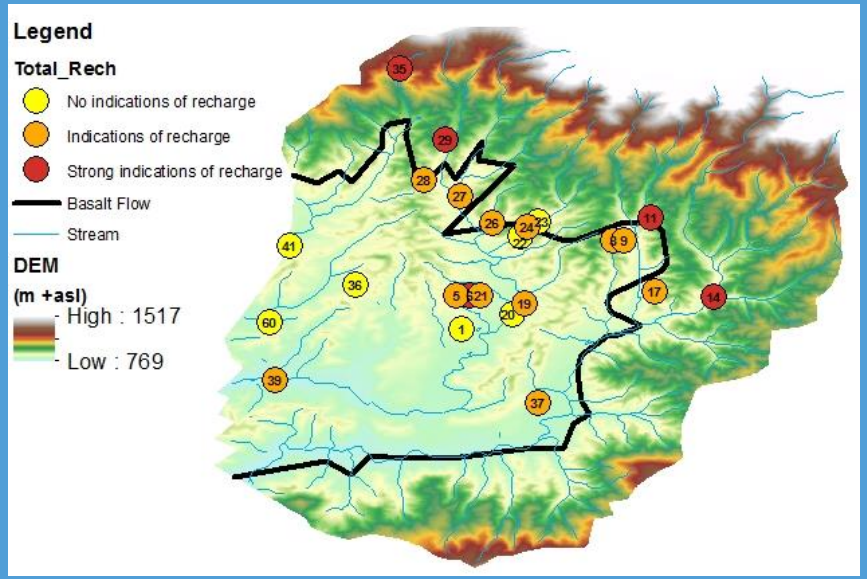


Resultaten

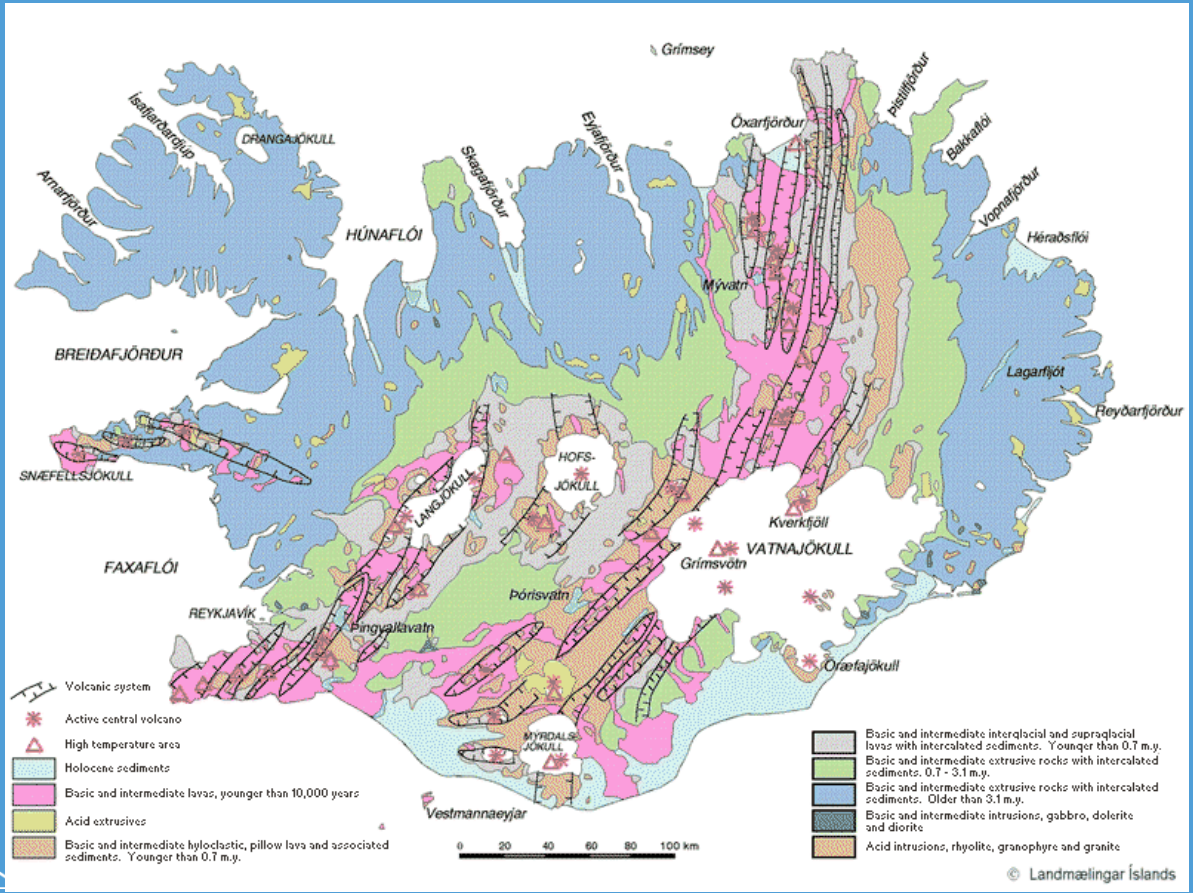
Bodems en locatie waterputten



Grondwateraanvulling

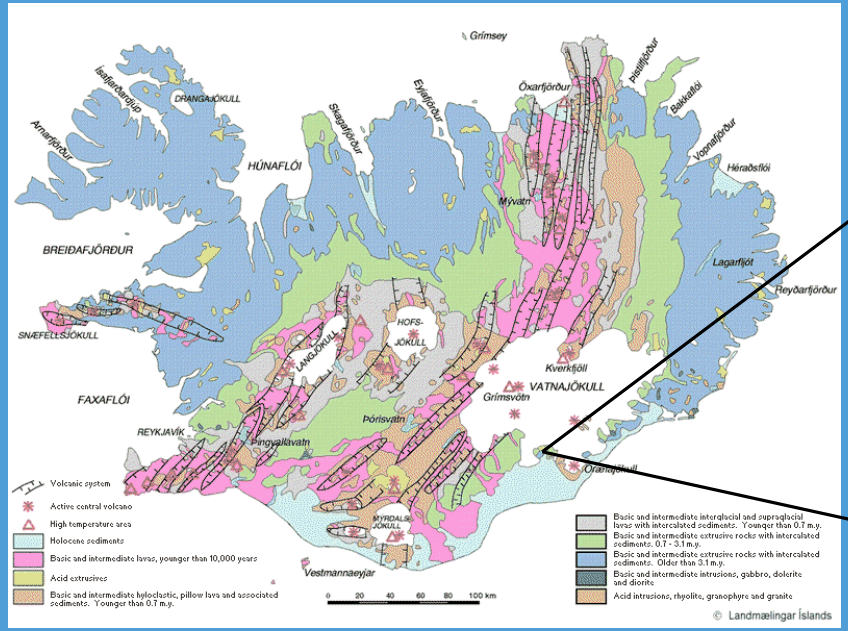


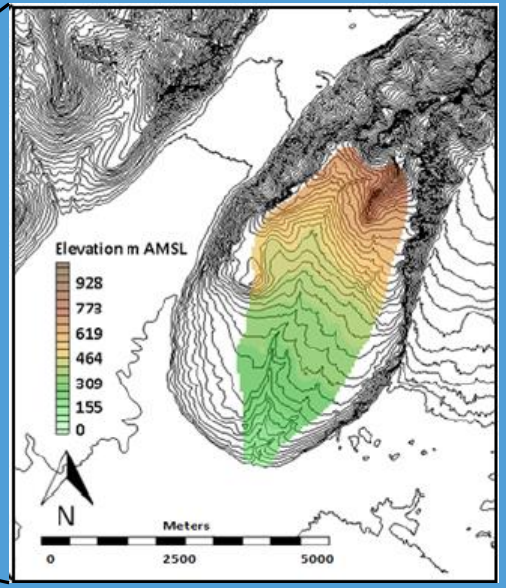
IJsland


Grímsey
Ísafjarðardjúp
DRANGAJÖKULL
Arnarfjörður
HÚNAFLÓI
Skagafjörður
Eyjafjörður
Öxarfjörður
Þistilfjörður
Bakkaflói
Vopnafjörður
Héraðsflói
Mývatn
BREIÐAFJÖRÐUR
Lagarfljót
Reyðarfjörður
SNÆFELLSJÖKULL
LANGJÖKULL
HOFS-
JÖKULL
Kverkfjöll
VATNAJÖKULL
Grímsvötn
FAXAFLÓI
Þórisvatn
REYKJAVÍK
Þingvallavatn
Öræfajökull
MÝRDALS-
JÖKULL
Vestmannaeyjar
Volcanic system
Active central volcano
High temperature area
Holocene sediments
Basic and intermediate lavas, younger than 10,000 years
Acid extrusives
Basic and intermediate hyloclastic, pillow lava and associated sediments. Younger than 0.7 m.y.
0 20 40 60 80 100 km
Basic and intermediate interglacial and supraglacial lavas with intercalated sediments. Younger than 0.7 m.y.
Basic and intermediate extrusive rocks with intercalated sediments. 0.7 - 3.1 m.y.
Basic and intermediate extrusive rocks with intercalated sediments. Older than 3.1 m.y.
Basic and intermediate intrusions, gabbro, dolerite and diorite
Acid intrusions, rhyolite, granophyre and granite
© Landmælingar Íslands

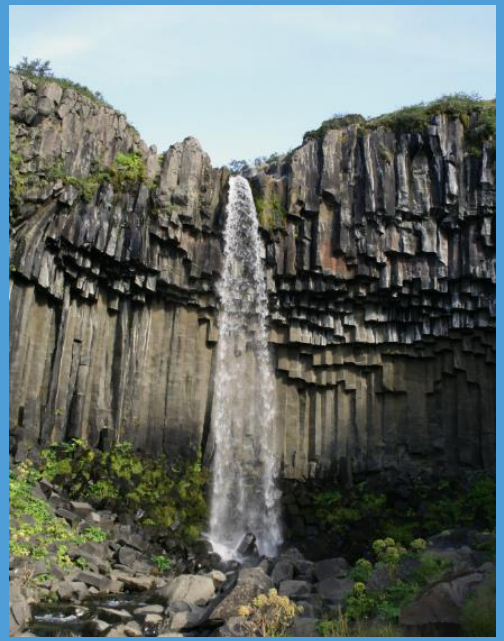
Sfeerbeelden IJsland

Lokale topgrafie

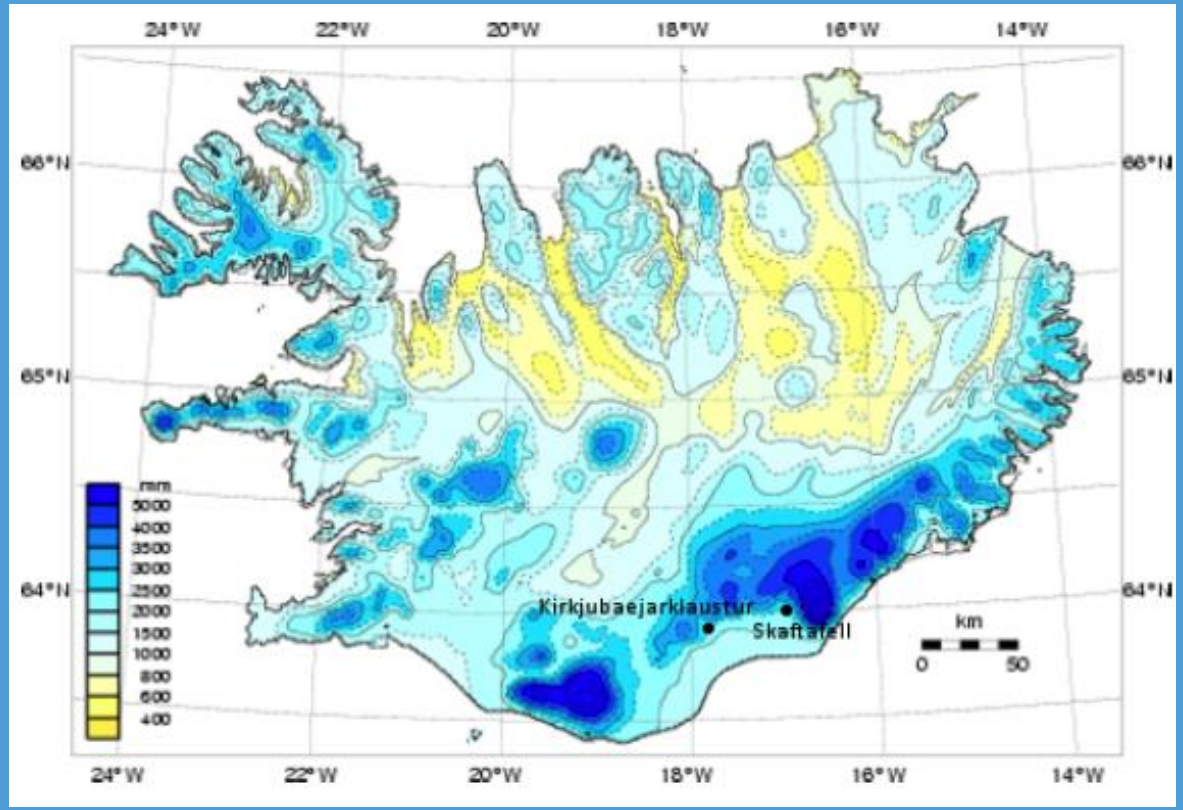




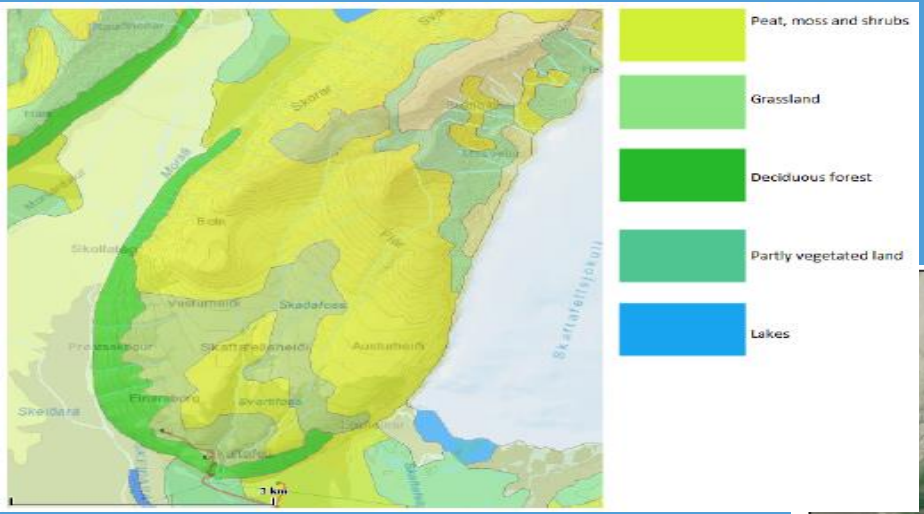
Group 4 (house A32)

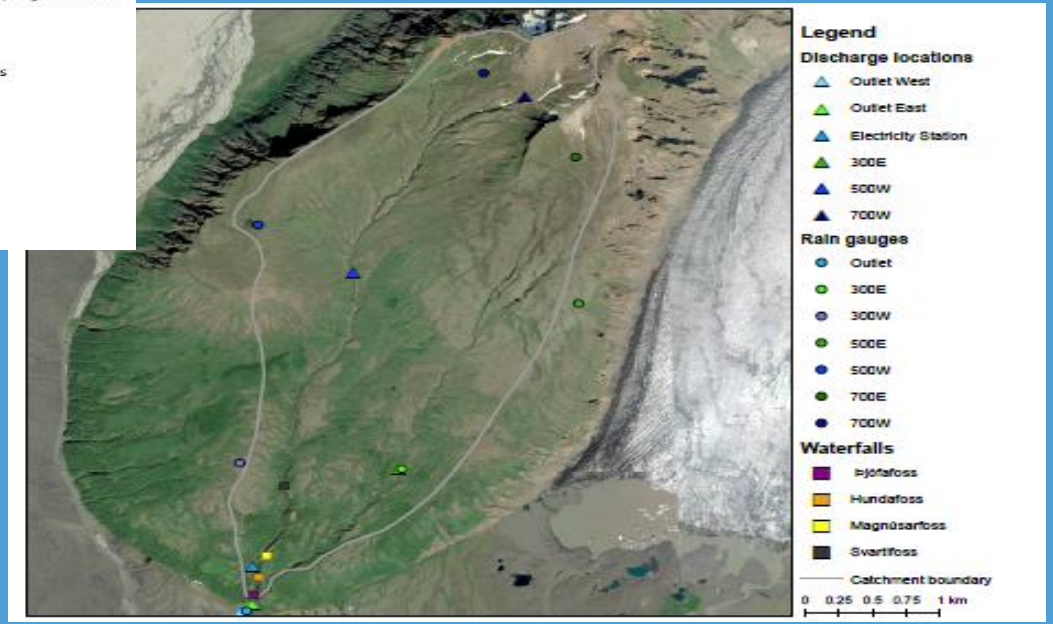


Neerslagverdeling

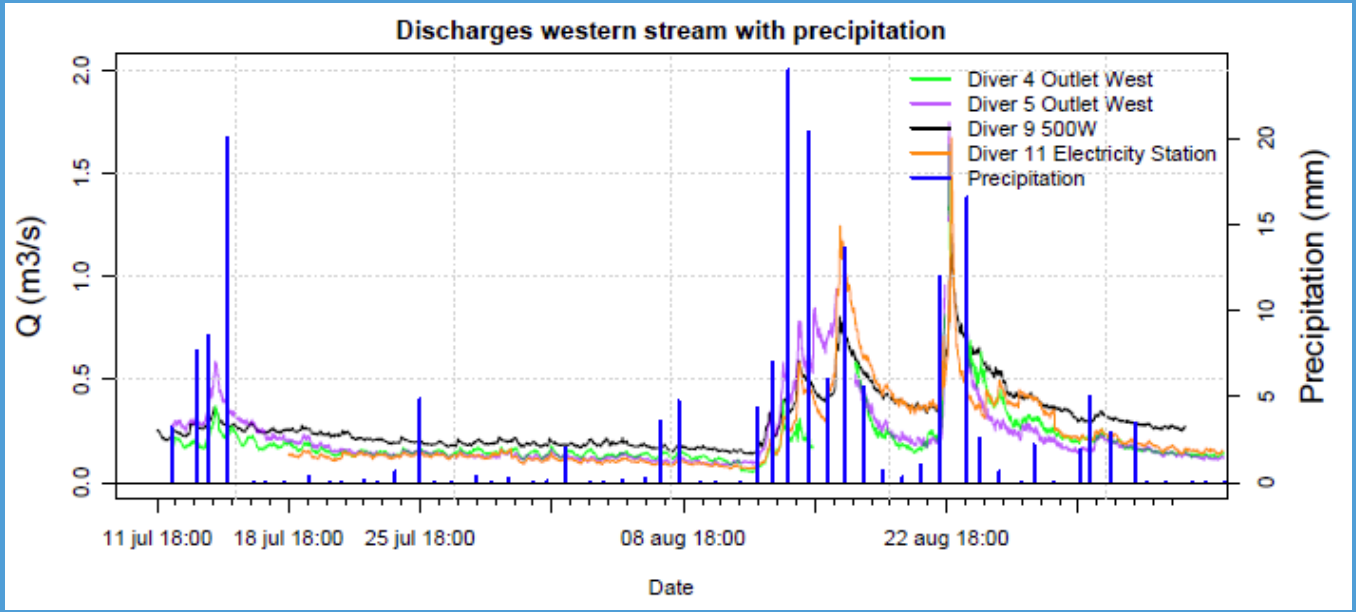


Metingen en vegetatie

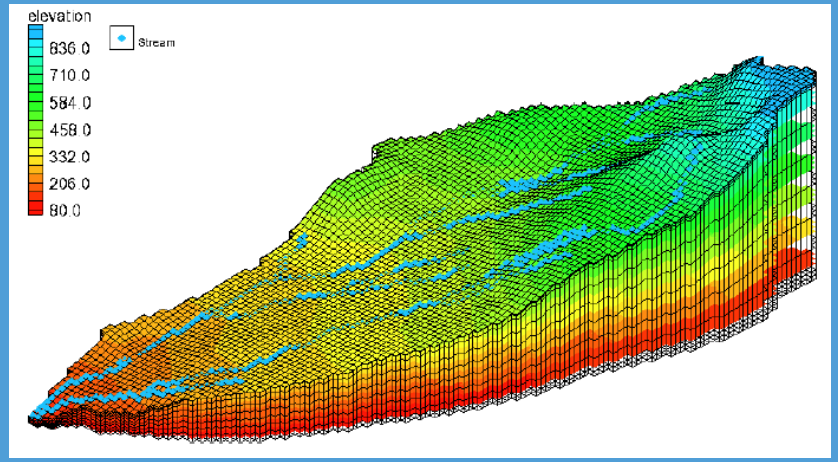


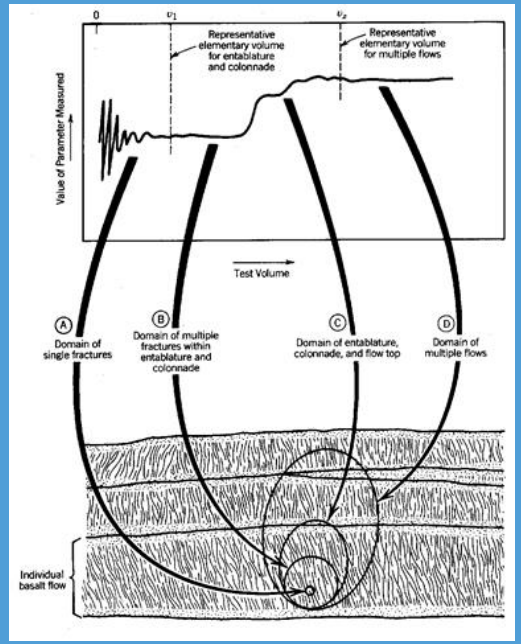


Afvoer westelijke stroompje

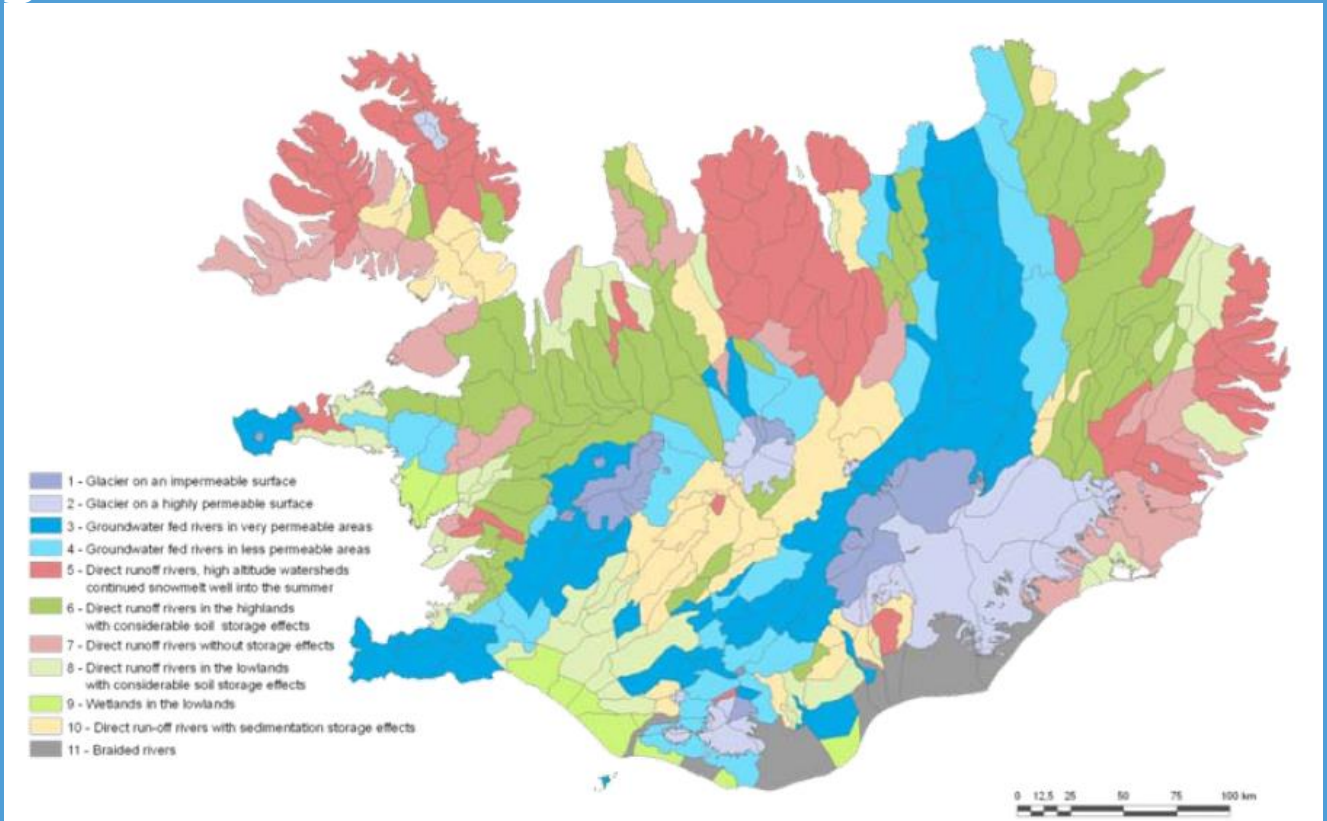


ModFlow model





Hydrologische classificatie IJsland



Author: Orkustofnun/Vatnamælingar

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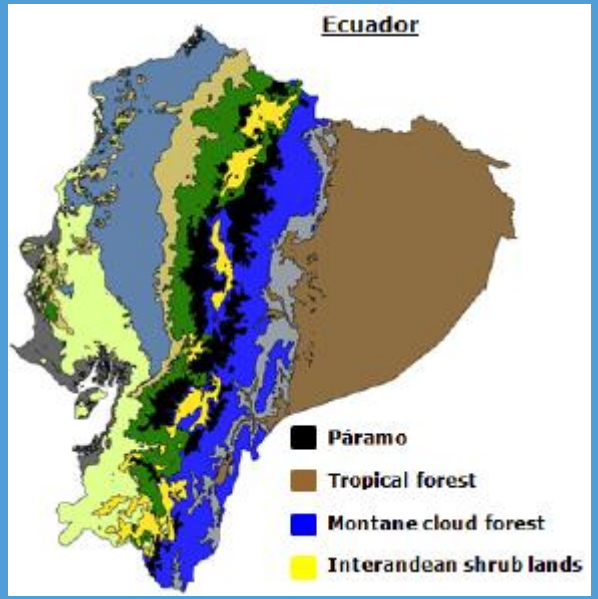
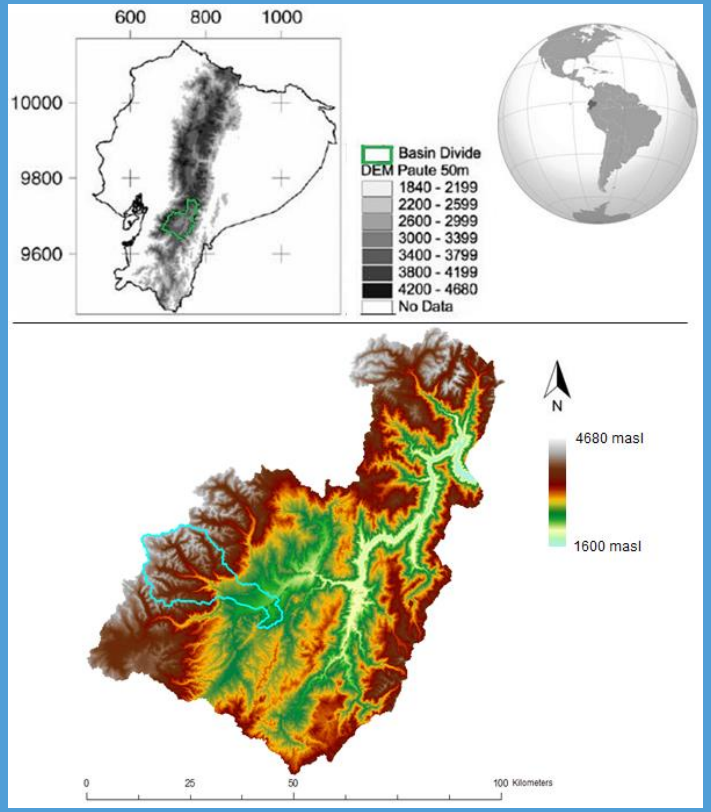
Topic 2: Drinkwater uit de Paramo, Ecuador





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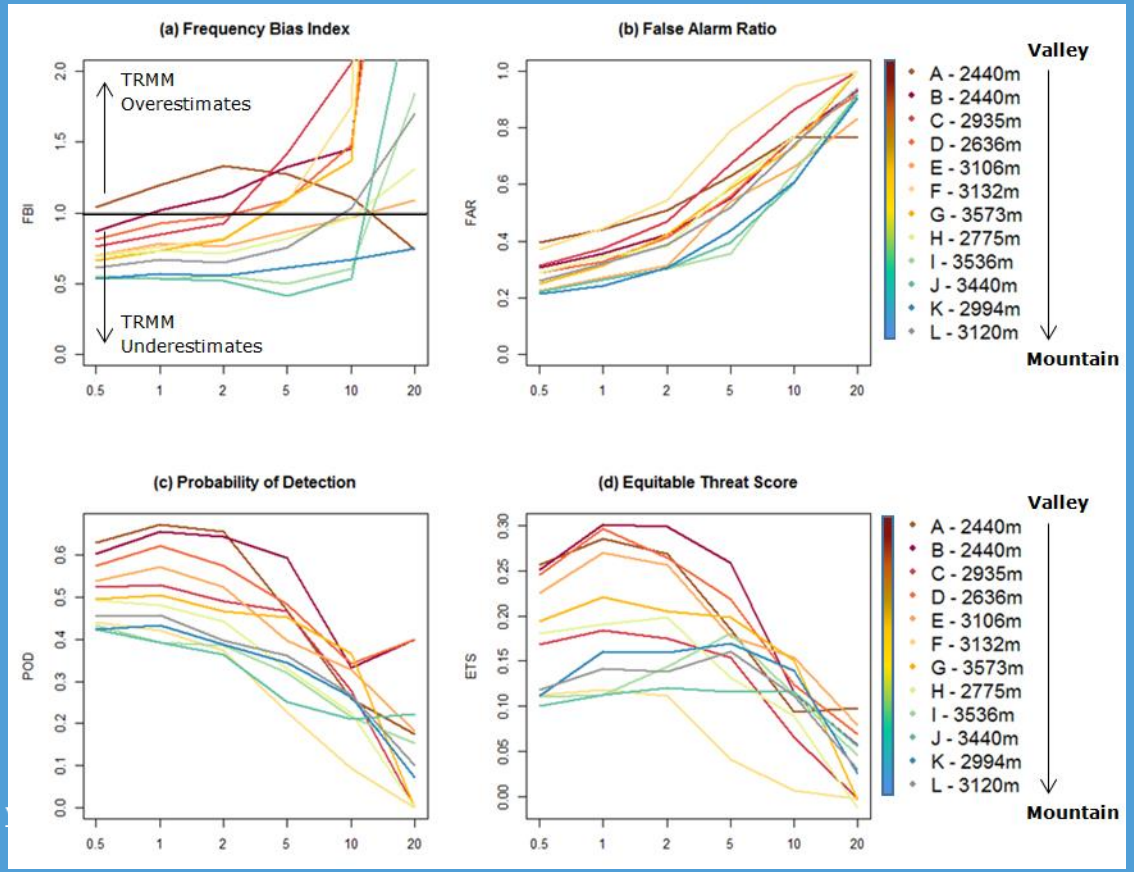
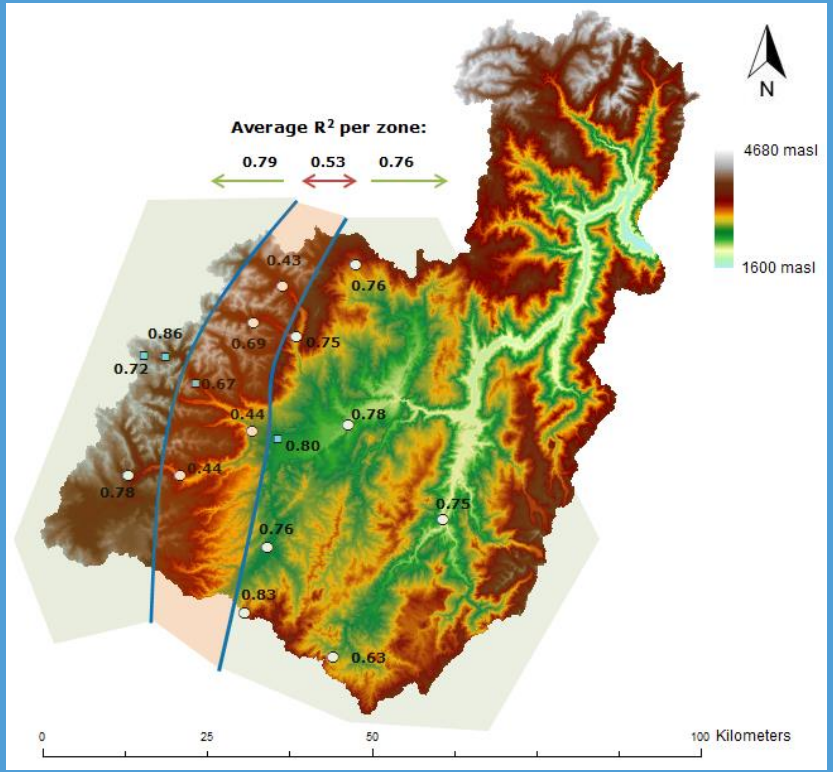
Paramo

TRMM en GPM

Resultaat


(a) Frequency Bias Index
TRMM
Overestimates
TRMM
Underestimates
FBI
(b) False Alarm Ratio
FAR
Valley
A - 2440m
B - 2440m
C - 2935m
D - 2636m
E - 3106m
F - 3132m
G - 3573m
H - 2775m
I - 3536m
J - 3440m
K - 2994m
L - 3120m
Mountain
(c) Probability of Detection
POD
(d) Equitable Threat Score
ETS
Valley
A - 2440m
B - 2440m
C - 2935m
D - 2636m
E - 3106m
F - 3132m
G - 3573m
H - 2775m
I - 3536m
J - 3440m
K - 2994m
L - 3120m
Mountain

Resultaat


Average R² per zone:
0.79
0.53
0.76
N
4680 masl
1600 masl
0.43
0.76
0.86
0.69
0.75
0.72
0.67
0.44
0.78
0.80
0.44
0.78
0.75
0.76
0.83
0.63
0
25
50
100 Kilometers

Conclusies

Projecten

Financiering

Contacten

Do’s en Dont’s

Best practices