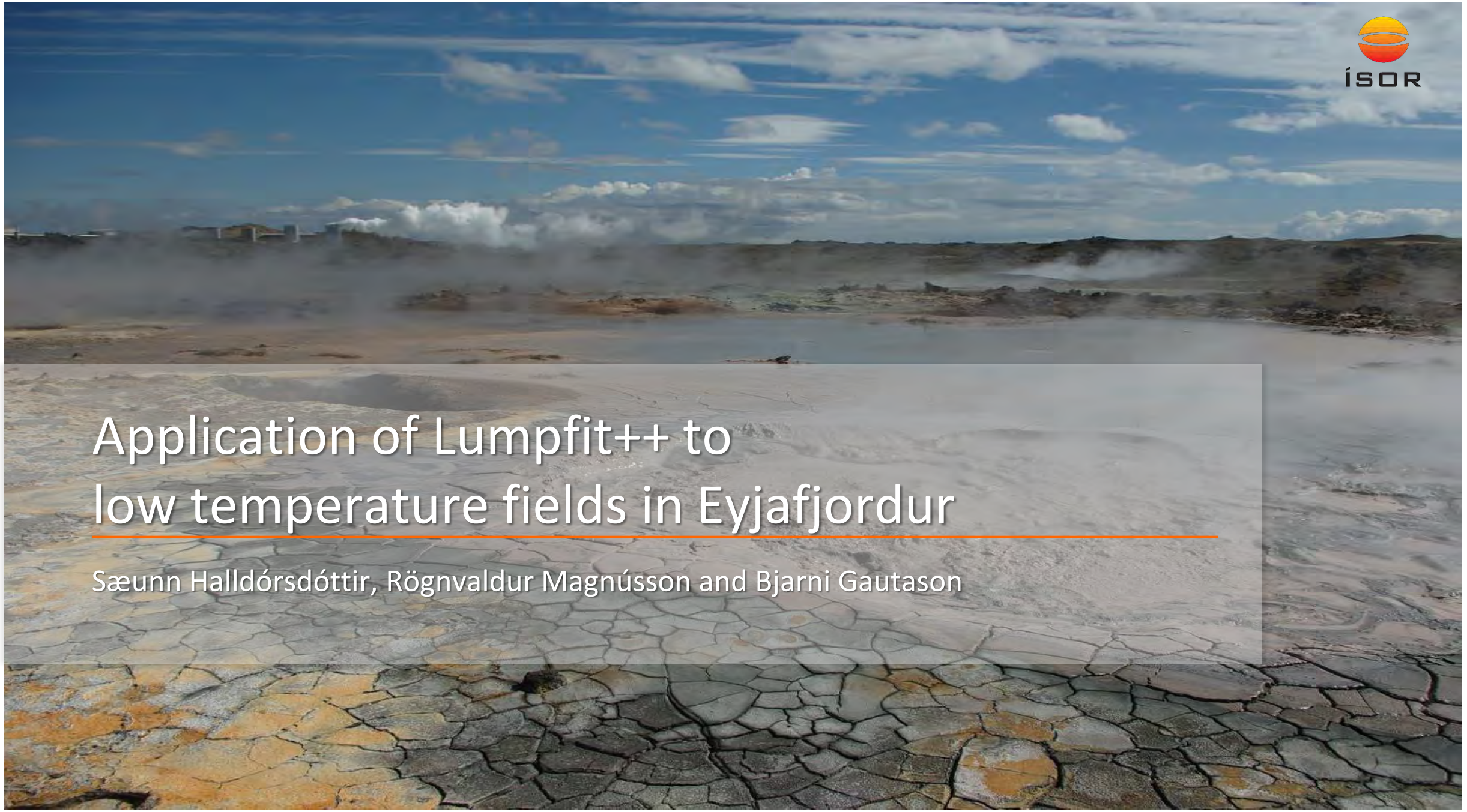
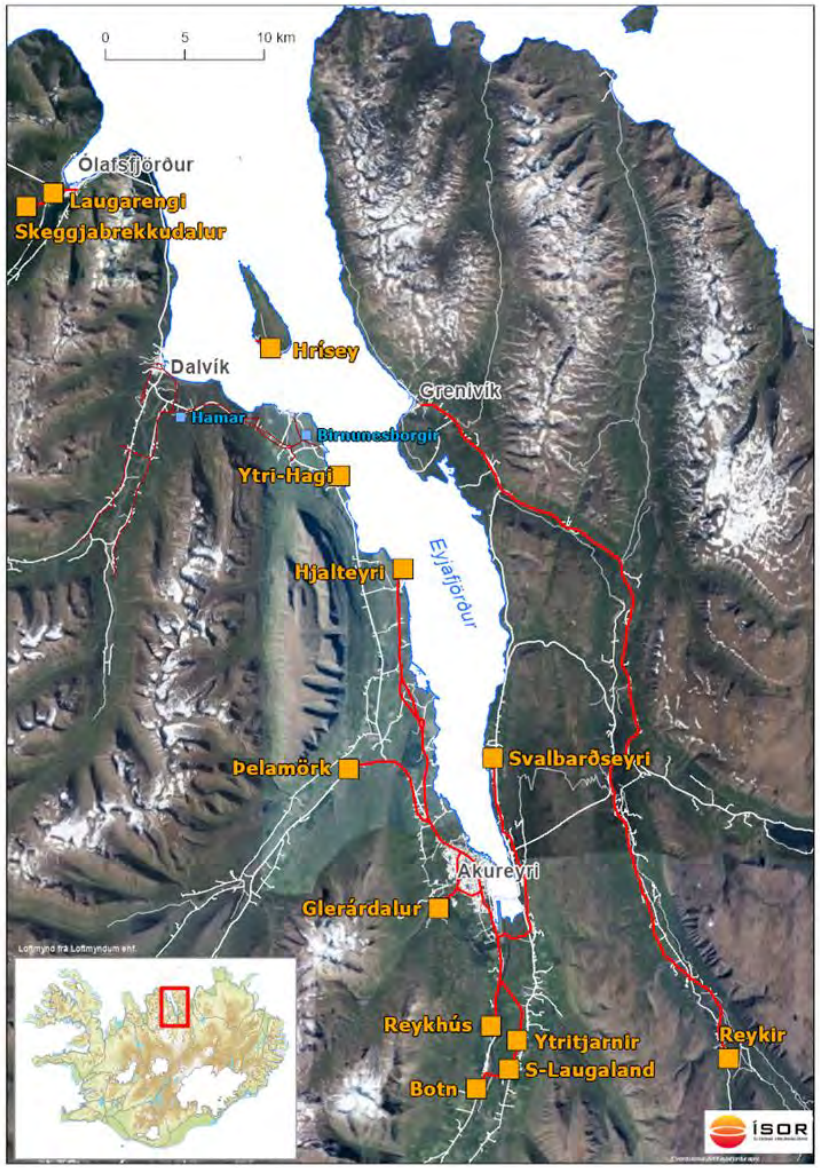
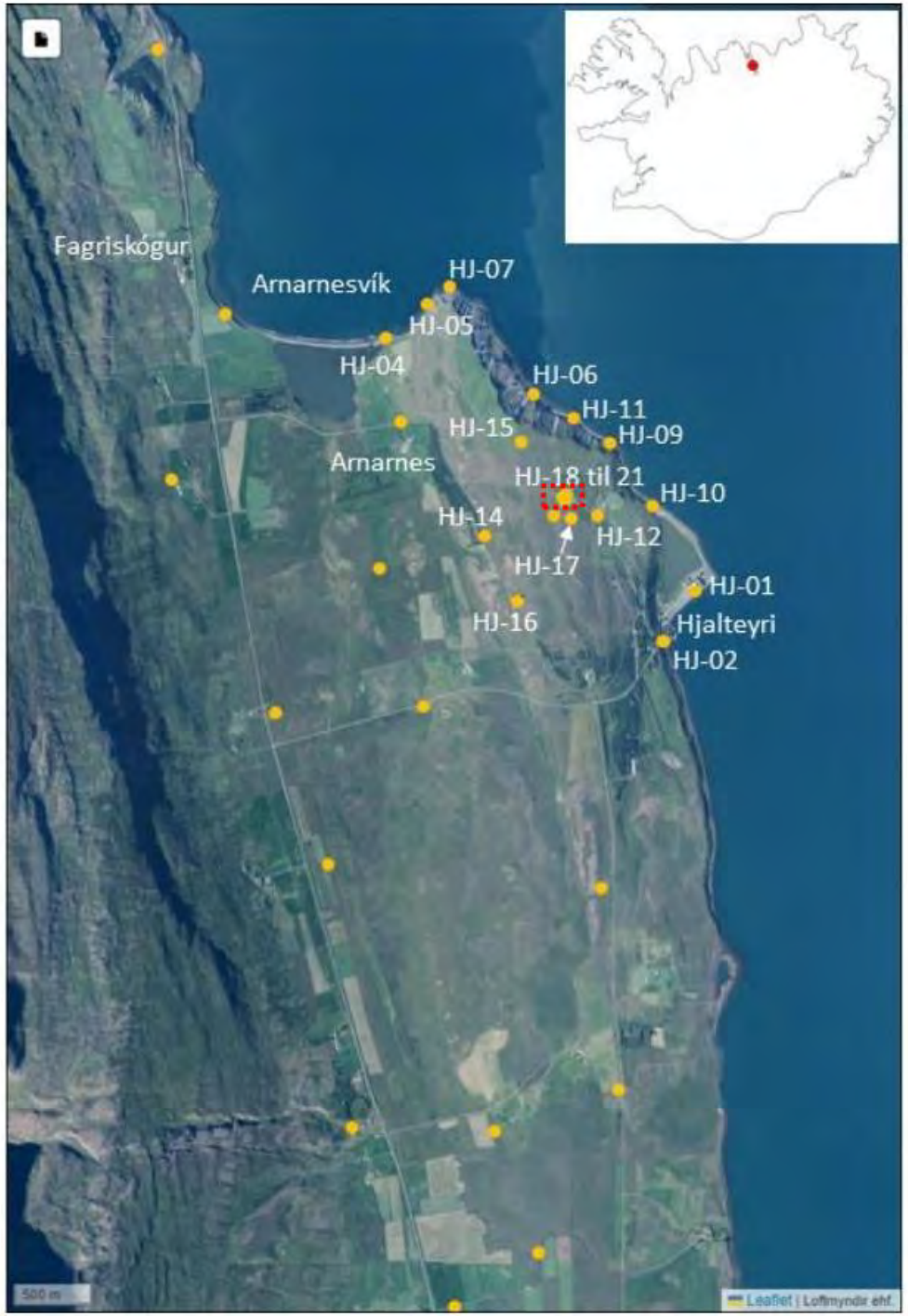


Application of Lumpfit++ to low temperature fields in Eyjafjordur

Sæunn Halldórsdóttir, Rögnvaldur Magnússon and Bjarni Gautason

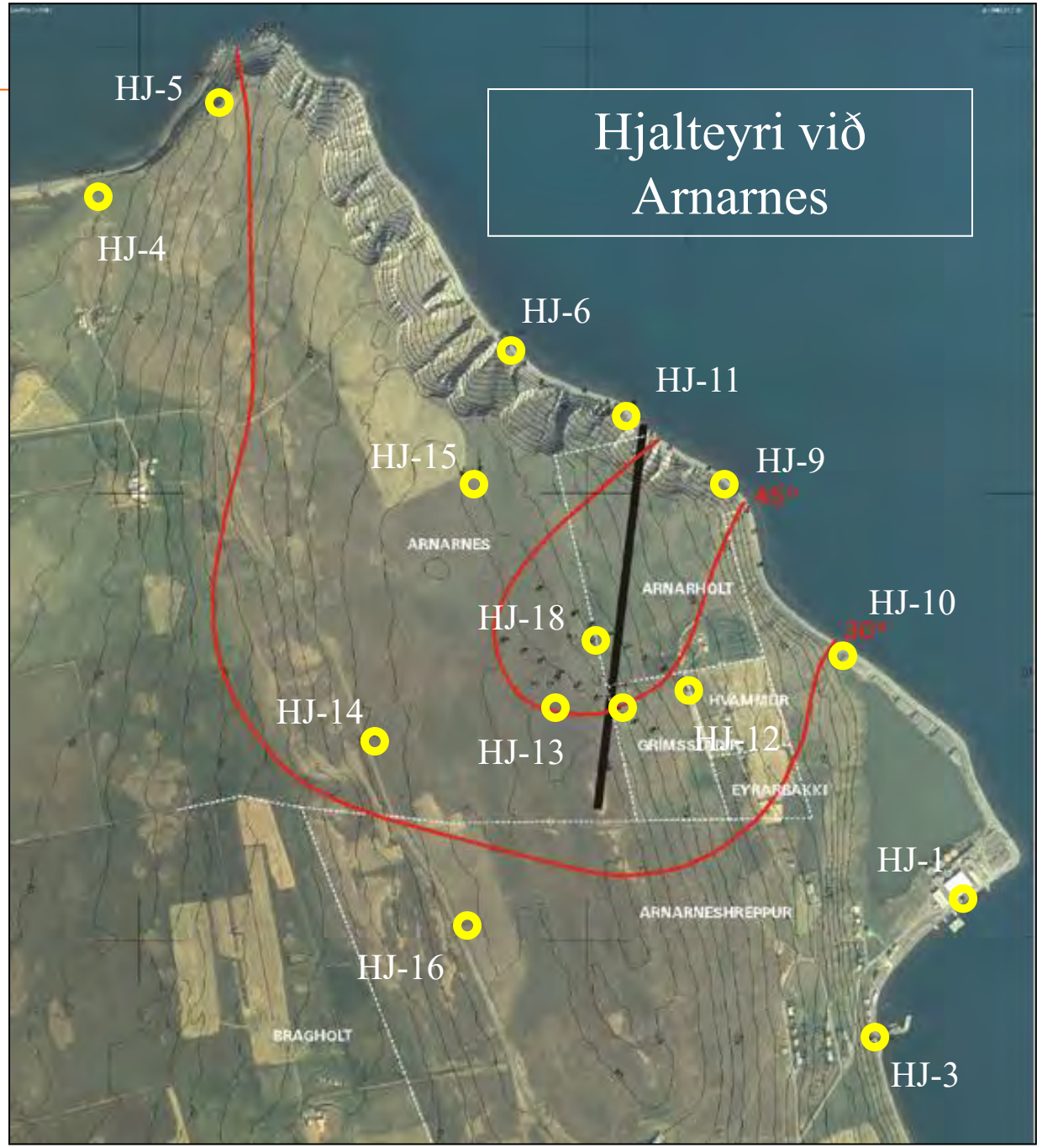
Hjalteyri

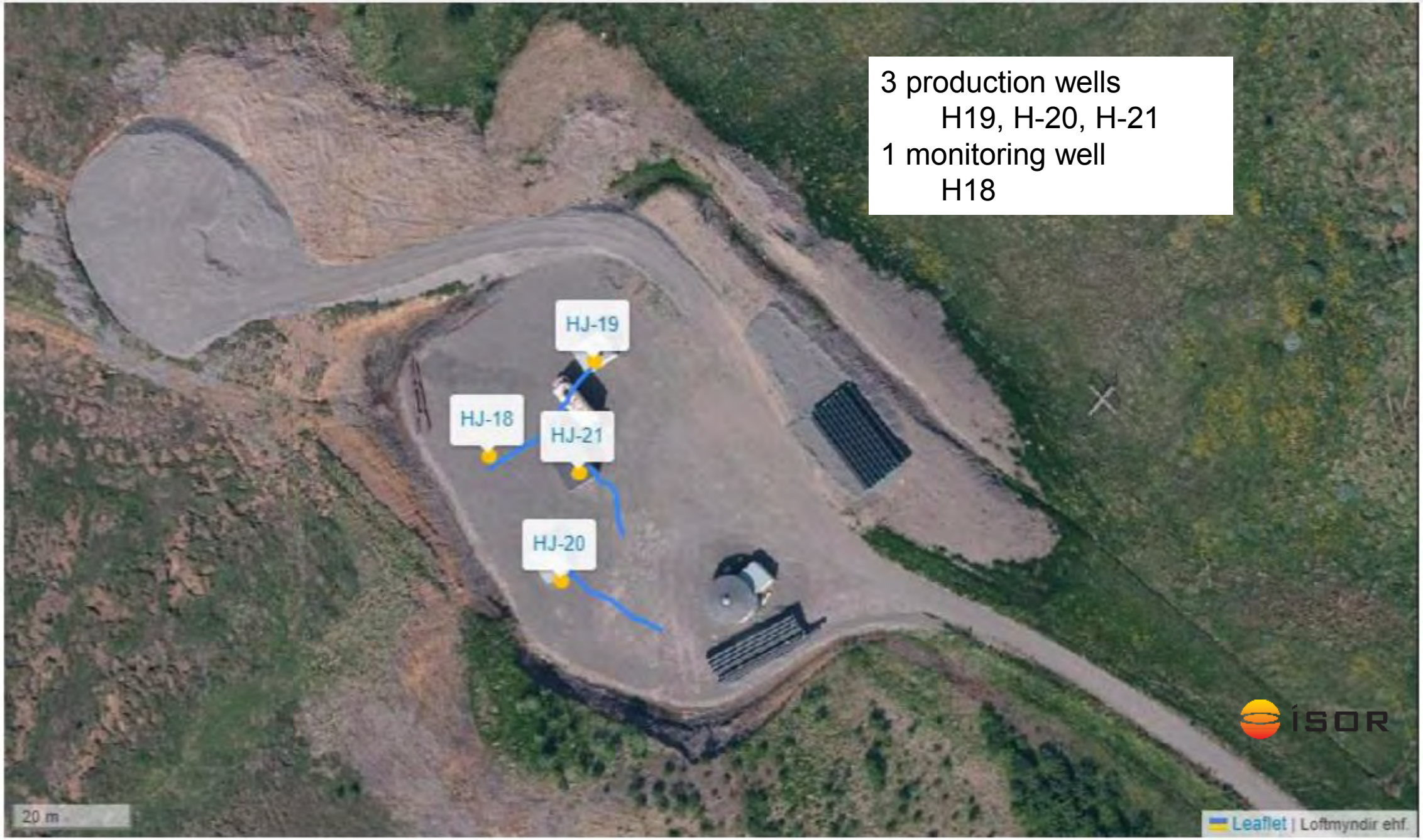

0
5
10 km
Ólafsfjörður
Laugarengi
Skeggjabrekkudalur
Hrísey
Dalvík
Grenivík
Hamar
Birnunesborgir
Ytri-Haga
Hjalteyri
Eyjafjörður
Þelamörk
Svalbarðseyri
Akureyri
Glerárdalur
Reykhús
Ytritjarnir
S-Laugaland
Botn
Reykir
ÍSOR

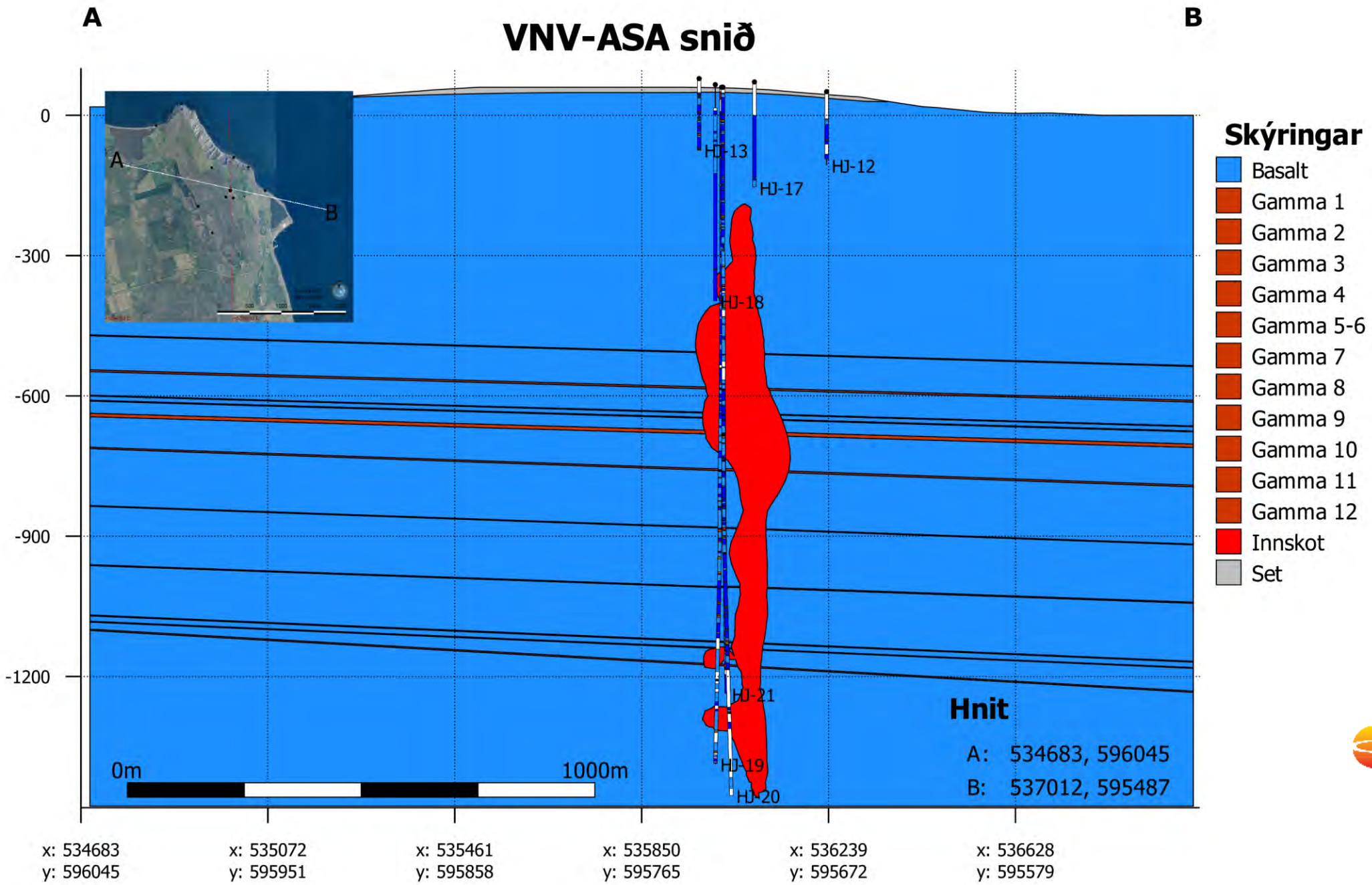

Fagriskógur
Arnarnesvík
HJ-07
HJ-05
HJ-04
HJ-06
HJ-11
HJ-09
HJ-15
Arnarnes
HJ-18 til 21
HJ-10
HJ-14
HJ-12
HJ-17
HJ-01
HJ-16
Hjalteyri
HJ-02
500 m
Leaflet | Loftmyndir ehf

Key facts

- Discovered in 2002 when high temperature gradient (100-110°C/km) was noted in shallow water-wells
- Extremely permeable, capable of yielding around 200 L/s of 90°C hot water with moderate drawdown
- Utilized since 2003, three production wells at present



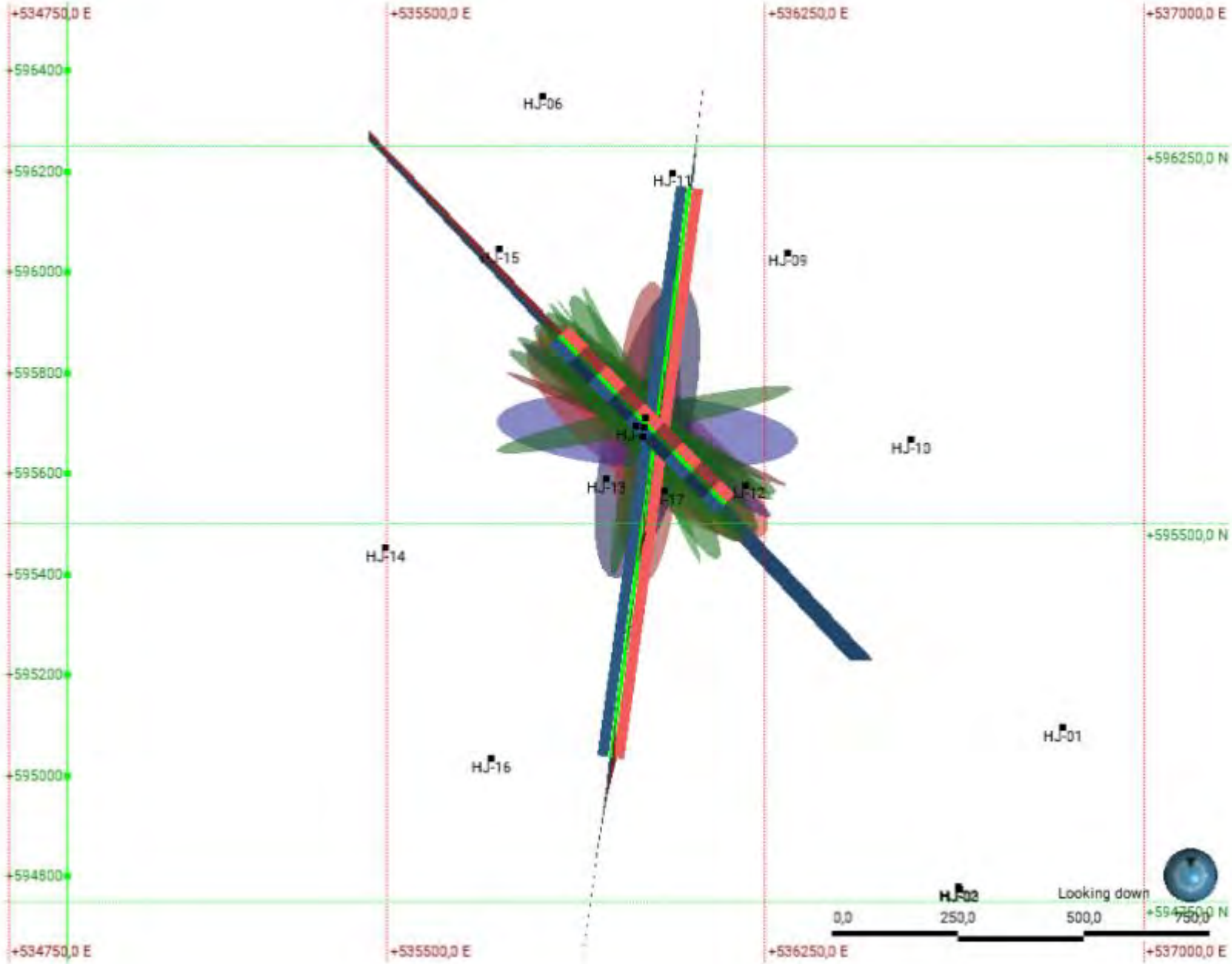

3 production wells
H19, H-20, H-21
1 monitoring well
H18
HJ-19
HJ-18
HJ-21
HJ-20
20 m
Leaflet | Loftmyndir ehf.
ÍSOR



Skýringar

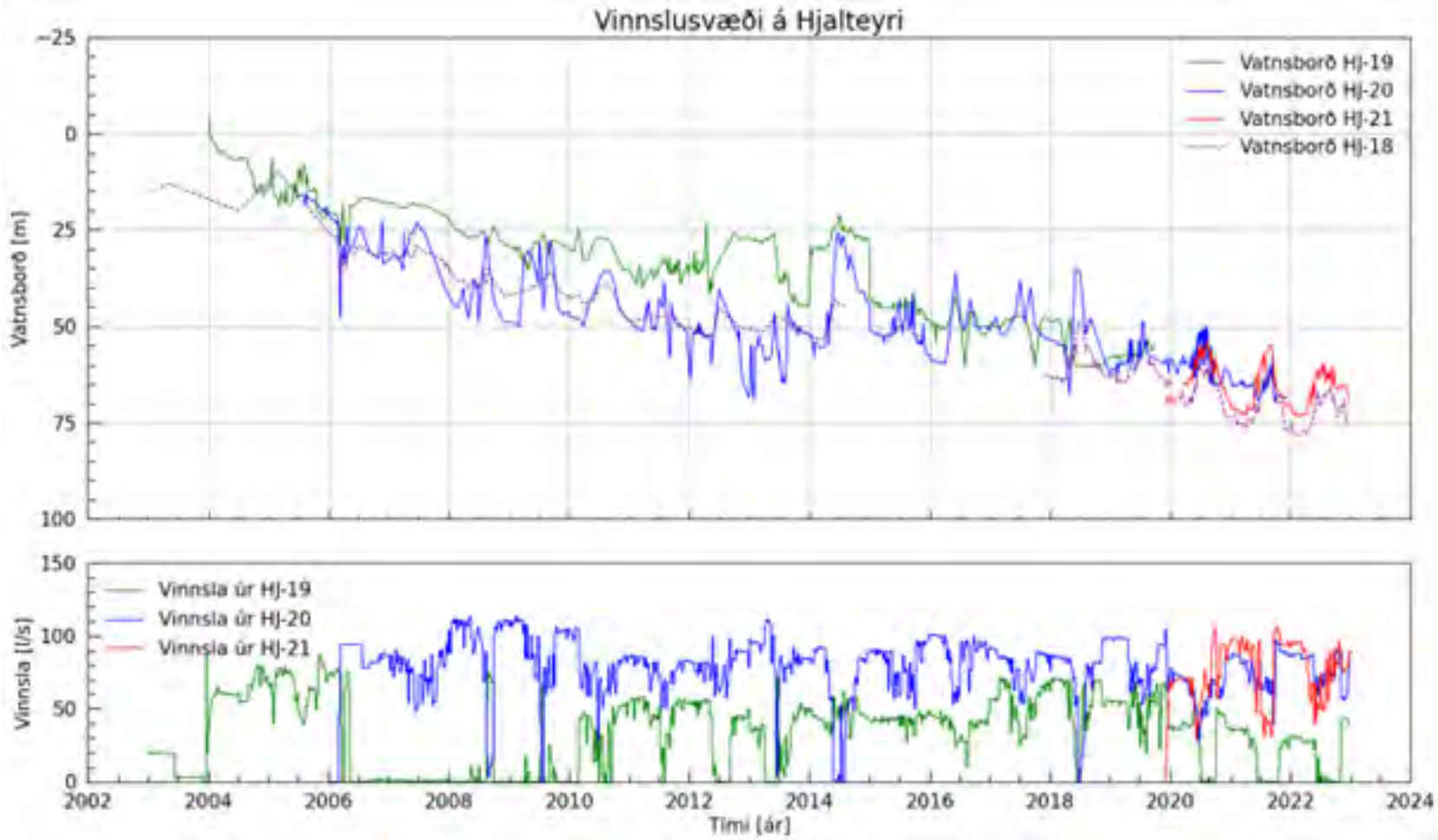
- Basalt
- Gamma 1
- Gamma 2
- Gamma 3
- Gamma 4
- Gamma 5-6
- Gamma 7
- Gamma 8
- Gamma 9
- Gamma 10
- Gamma 11
- Gamma 12
- Innskot
- Set

ÍSOR


+534750,0 E
+535500,0 E
+536250,0 E
+537000,0 E
+596400
+596200
+596000
+595800
+595600
+595400
+595200
+595000
+594800
+596250,0 N
+595500,0 N
+594750,0 N
HJ-06
HJ-11
HJ-15
HJ-09
HJ-10
HJ-13
HJ-12
HJ-14
HJ-16
HJ-01
HJ-02
Looking down
0,0
250,0
500,0
750,0

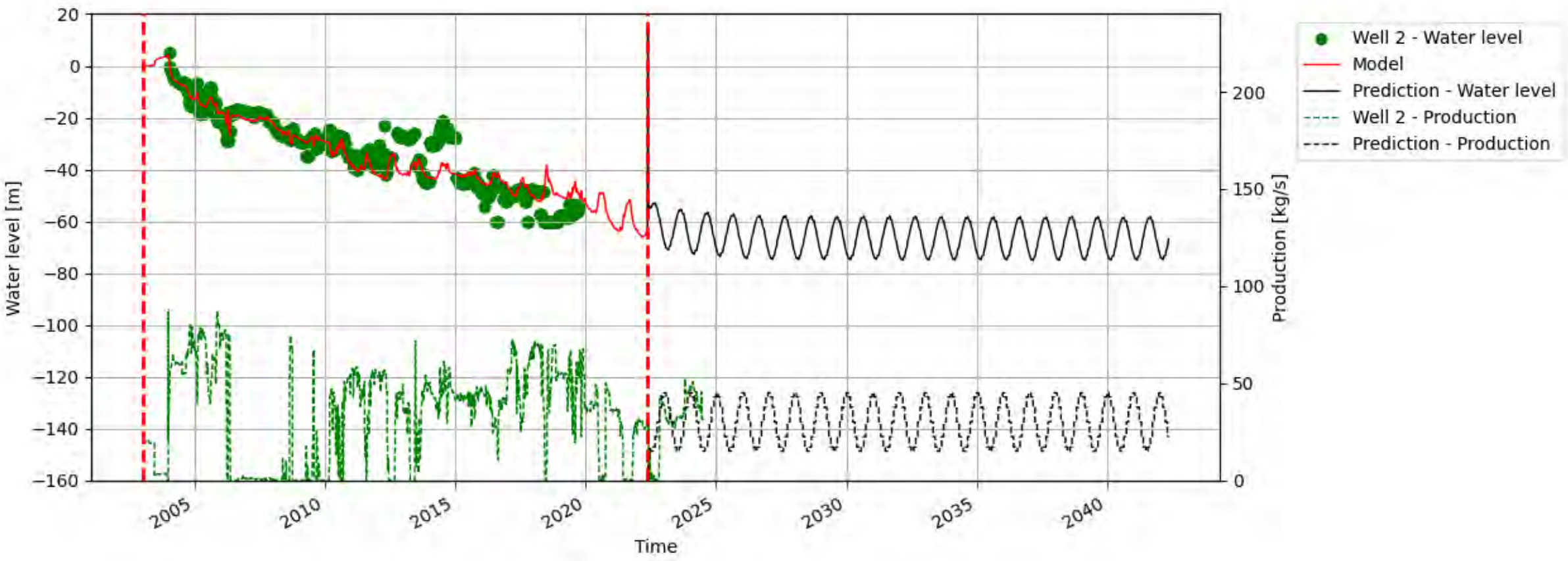
ÍSOR

Available production history from Hjalteyri

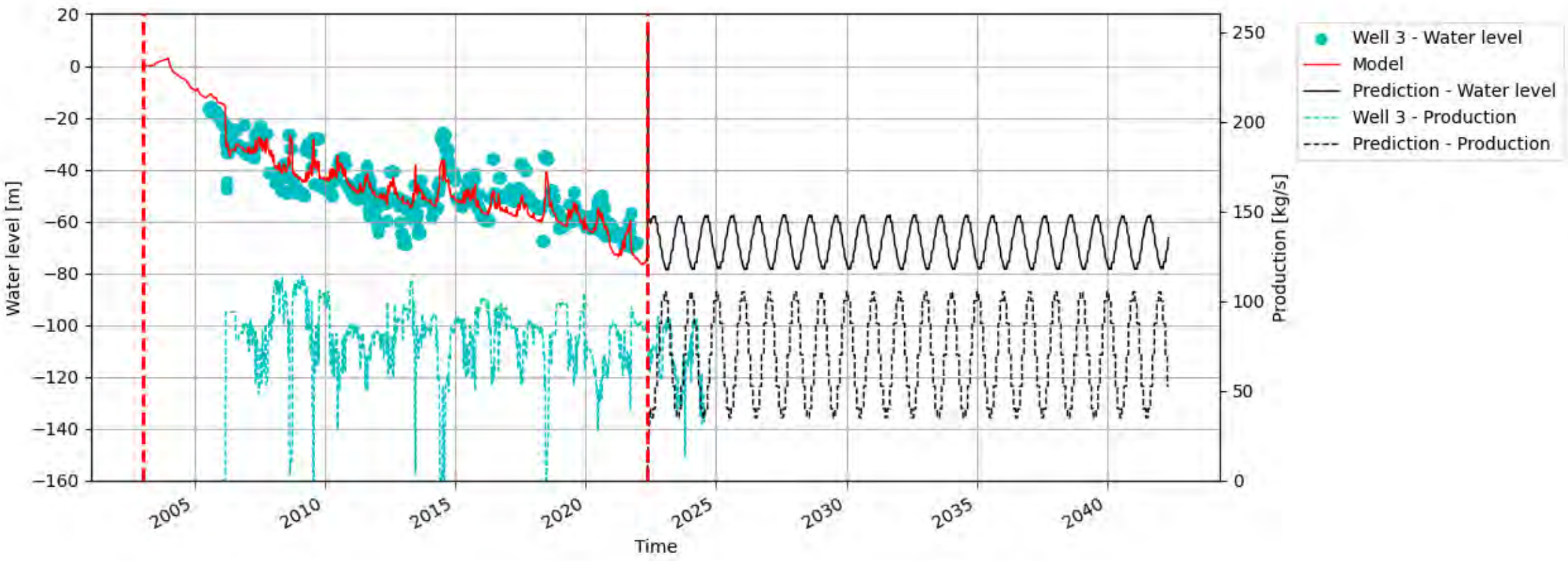


Þorsteinn Egilson 2024

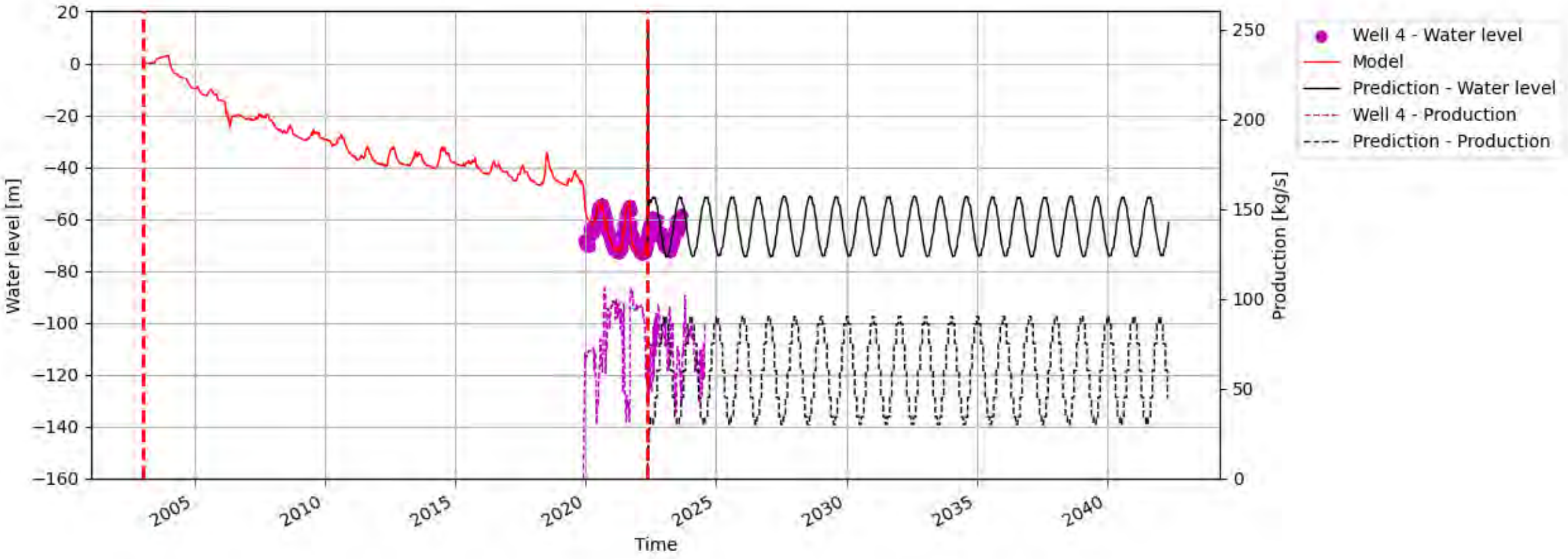
Water level and production in HJ-19



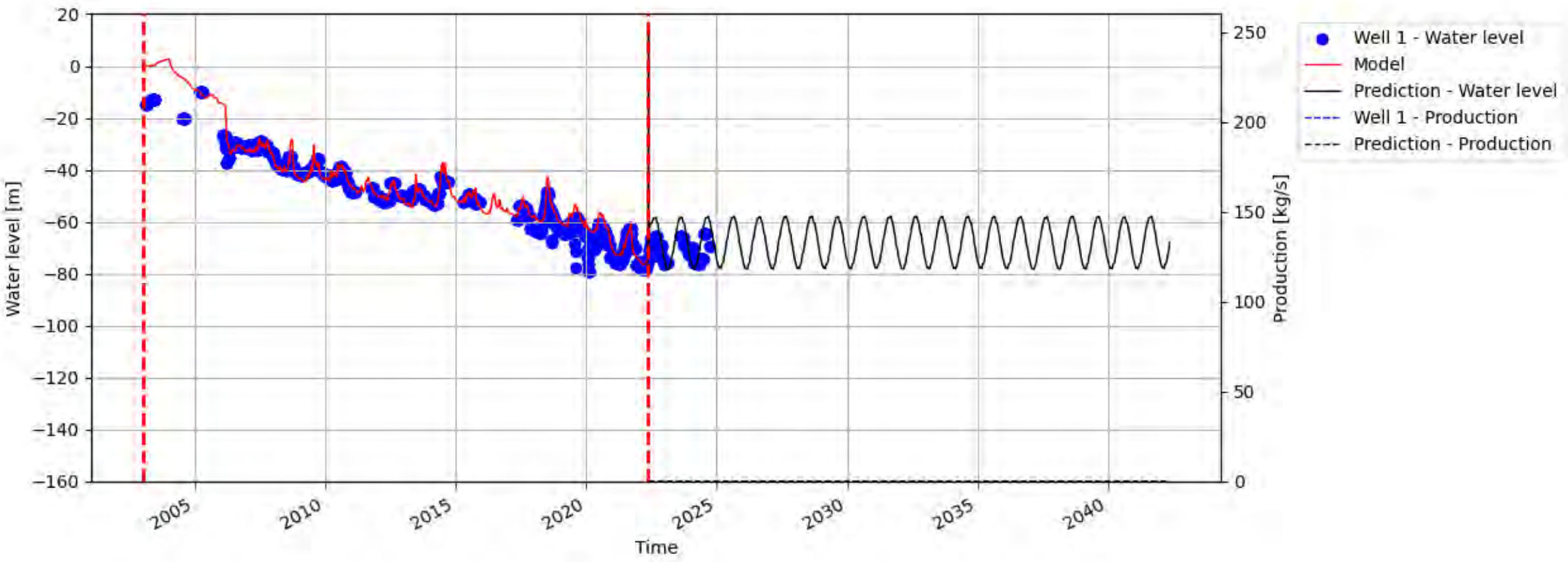
Water level and production in HJ-20



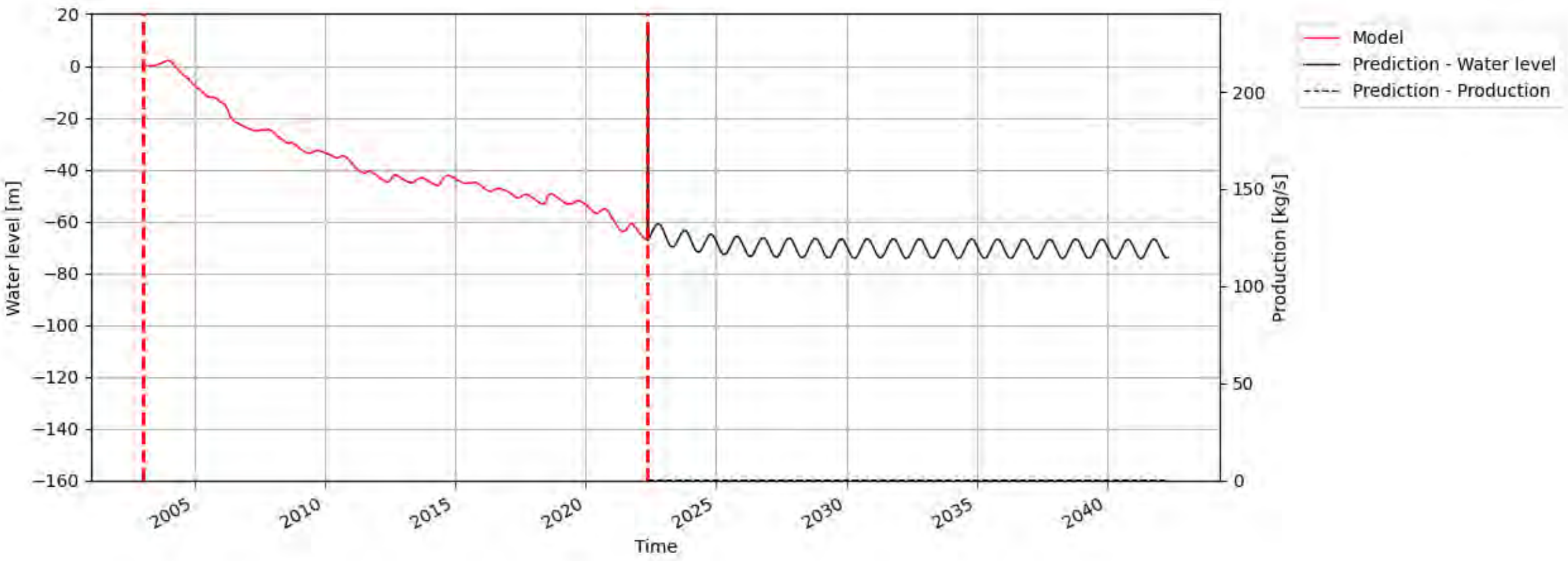
Water level and production in HJ-21



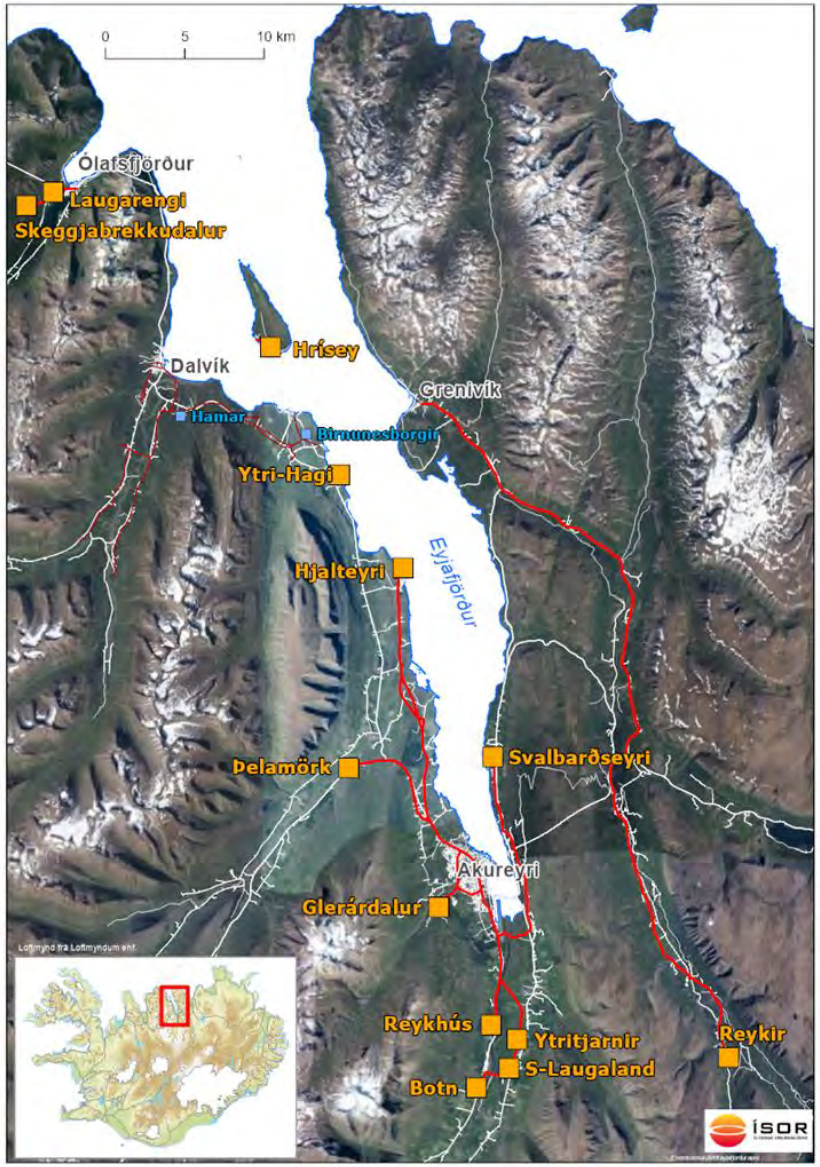
Water level in HJ-18 (monitoring well)



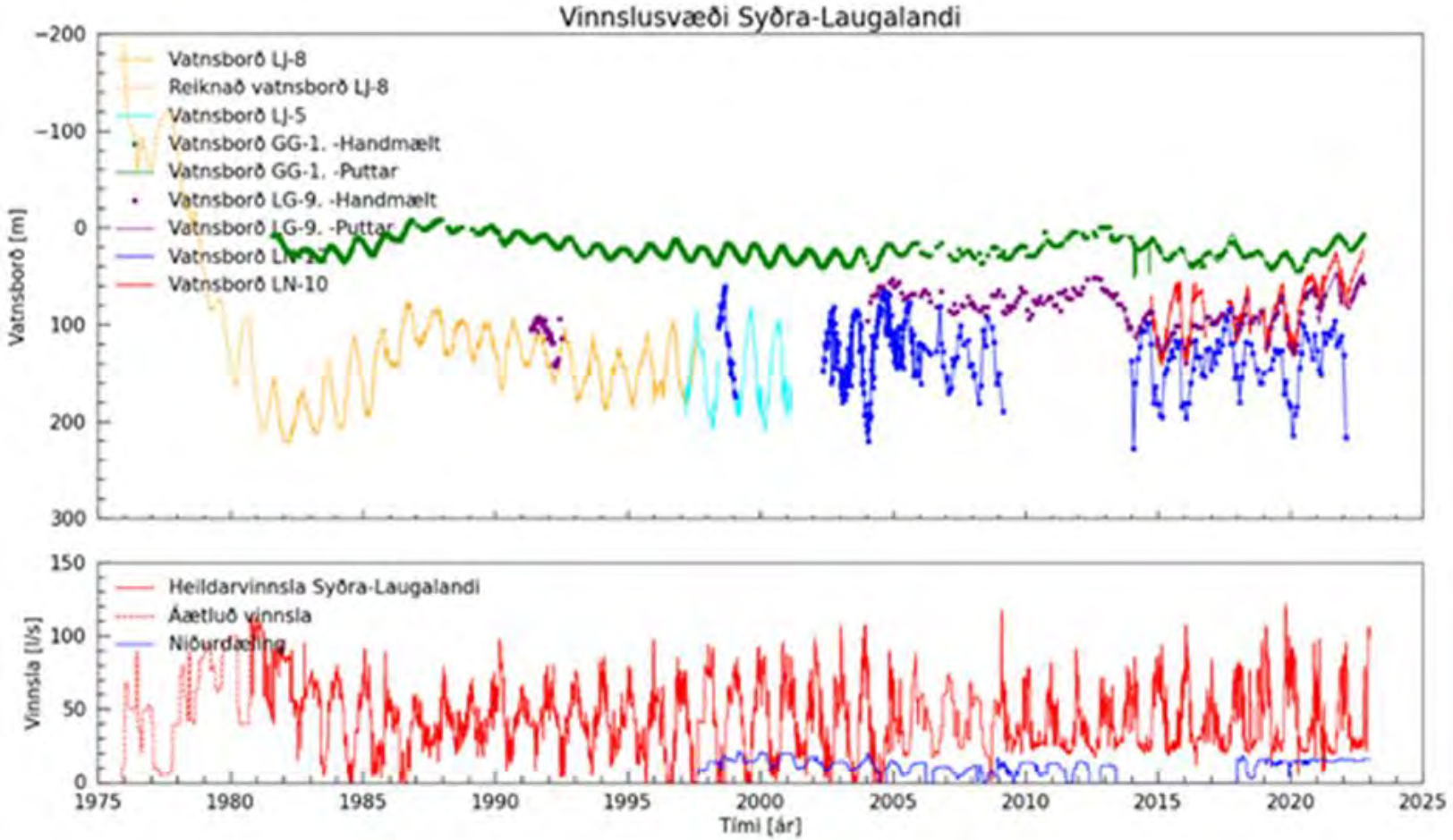
Water level in the extra tank (no well)



Syðra Laugaland

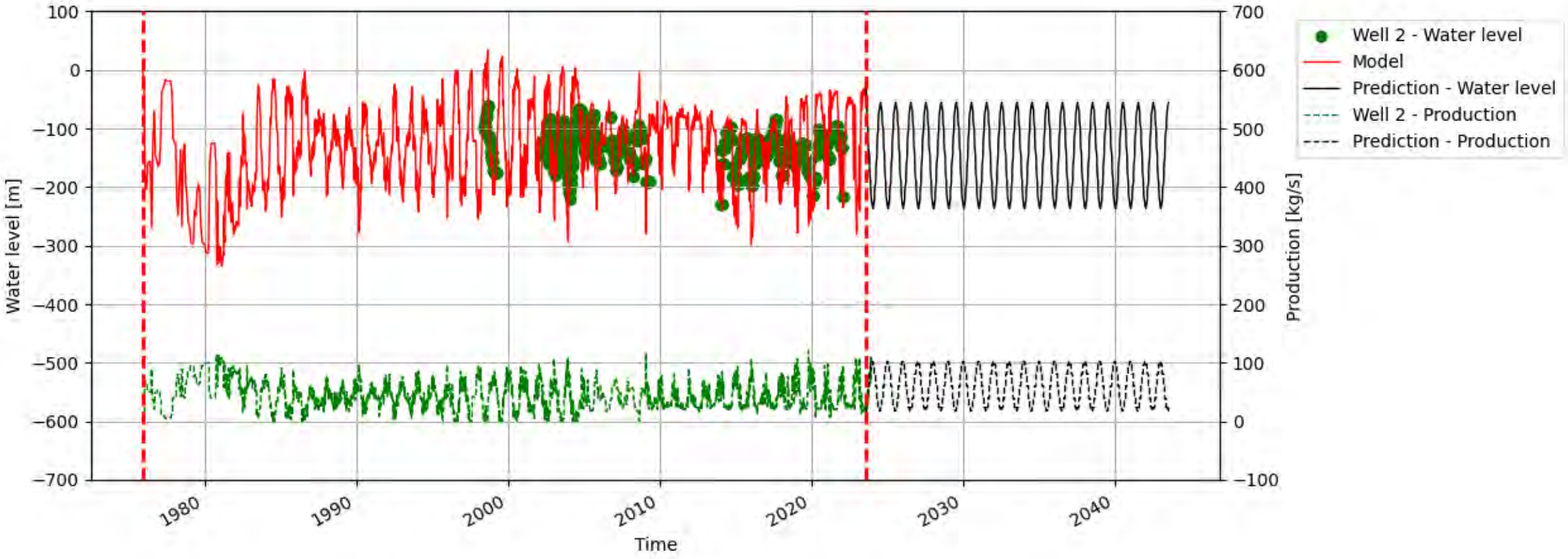


Available production history from Syðri Laugaland

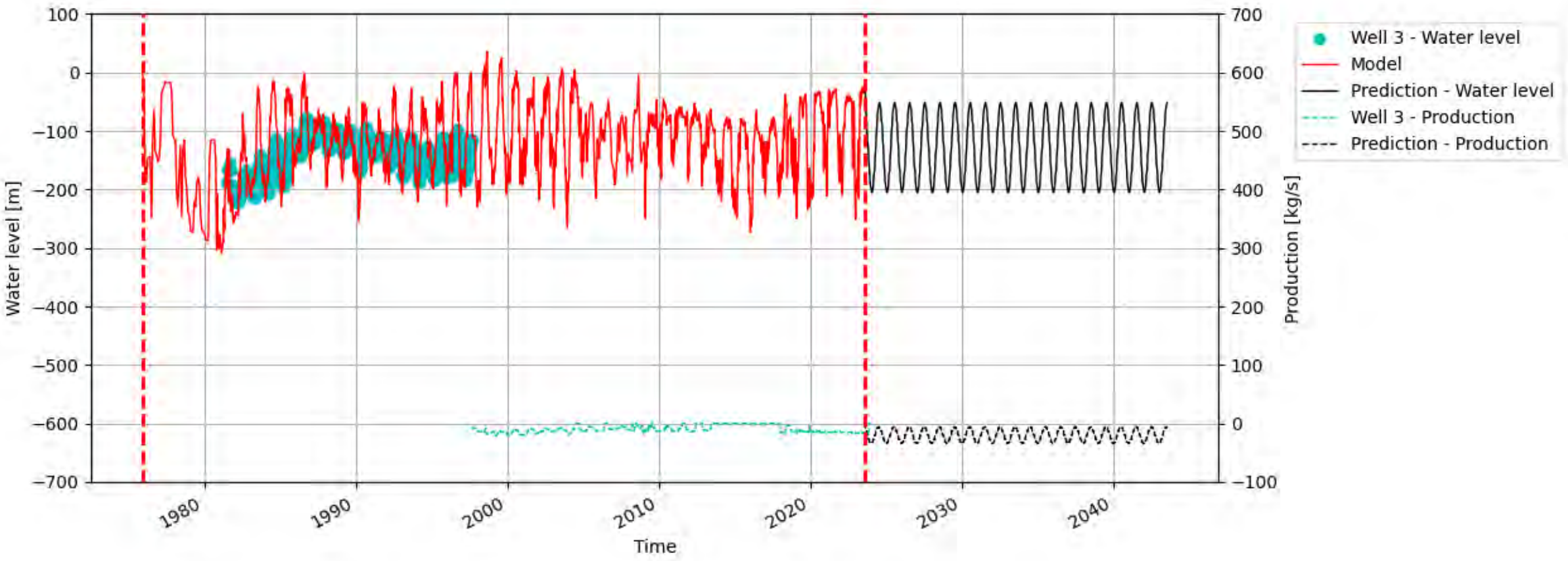


Þorsteinn Egilson 2024

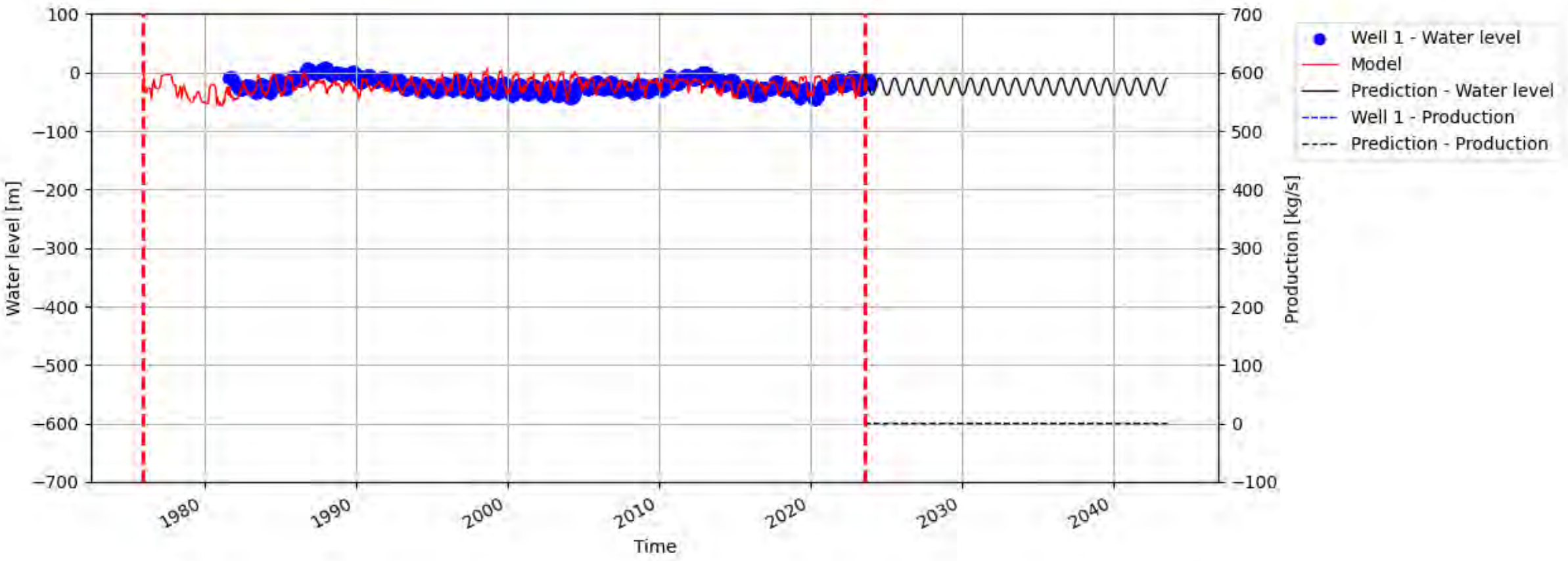
Water level and production in Ln-12



Water level and re-injection in Lg-08



Water level in gg-01



Notes about modelling with Lumpfit++

- Modeling of data from Hjalteyri and Syðra Laugaland are very promising
- Further work involves comparing to available previous prediction with old Lumpfit
- Considerable effort into processing of data
- The new software significantly increases the ability to calibrate reservoir model and create pressure/water level predictions for multiple production wells

Iceland Liechtenstein Norway grants

Norway grants

Acknowledgements

The work presented is a part of project "Optimal management of low-temperature geothermal reservoirs – Polish-Icelandic cooperation on reservoir modelling" (acronym GeoModel), financed under the Fund for Bilateral Relations through the European Economic Area Financial Mechanism (EEA FM) and the Norwegian Financial Mechanism (NFM) 2014-2021.

geomodel.pl

Iceland Liechtenstein Norway grants

Norway grants

Thank you for your kind attention!

Mineral and Energy Economy Research Institute
Polish Academy of Sciences

ÍSOR