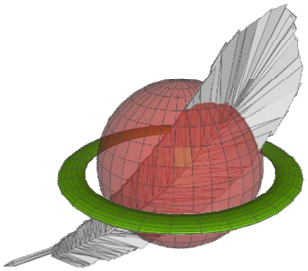
FREEWAT
Free and Open Source Software Tools for Water Resource Management
EU HORIZON 2020 Project

Horizon 2020
European Union Funding
for Research & Innovation

TARTU ÜLIKOOL
geoloogia osakond
1632

AkvaGIS – hüdrogeoloogia andmebaas ja andmetöötlusvahendid





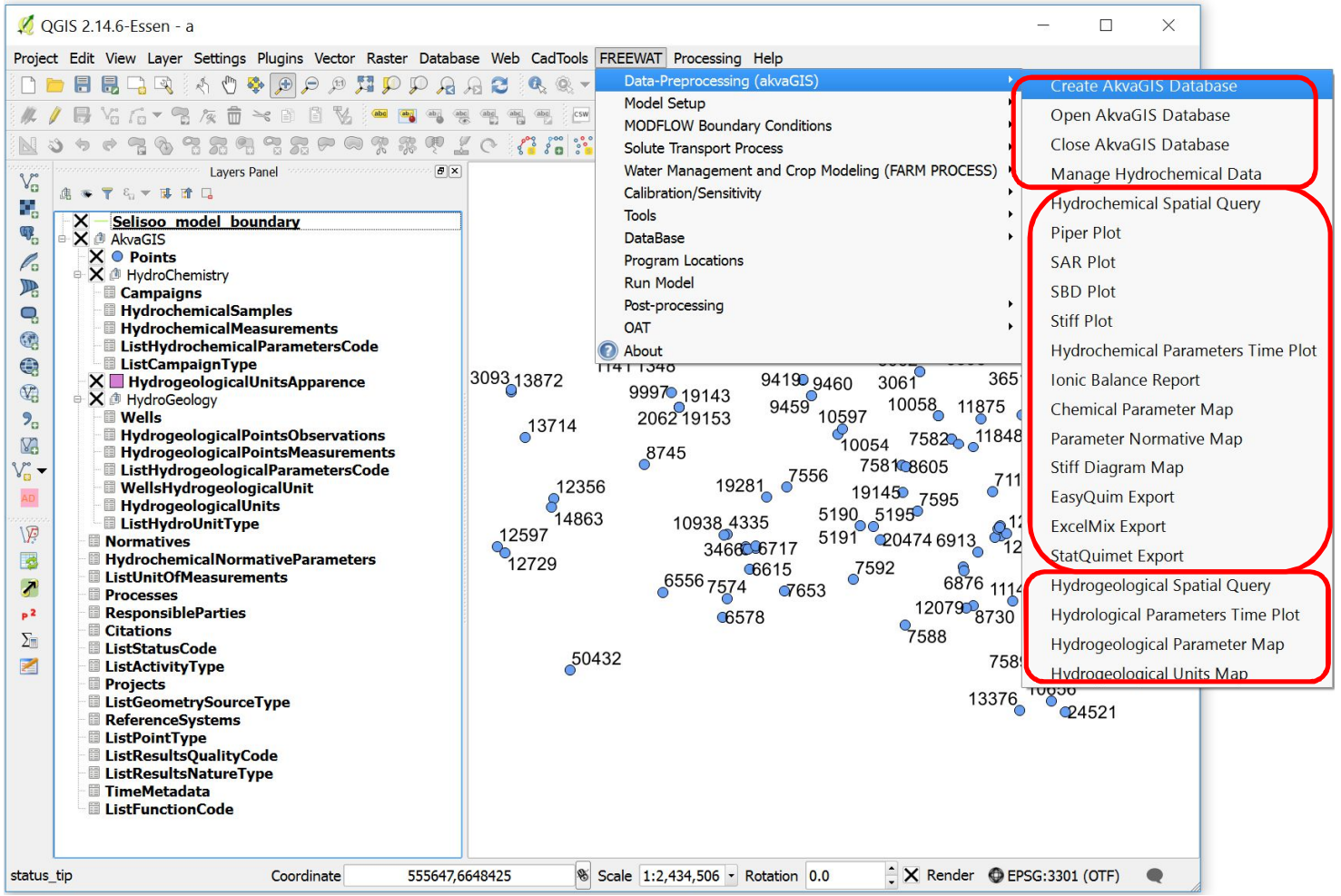
Moodul AkvaGIS seob omavahel ruumiandmebaasi SpatiaLite ja QGIS-i ruumipäringu vahendid.

AkvaGIS:

- **Andmebaas**
- **Hüdrogeokeemia analüüsivahendid**
- **Hüdrogeoloogia analüüsivahendid**
- **Ekspordivahendid**

Tallinn, 24.-27.01.2017

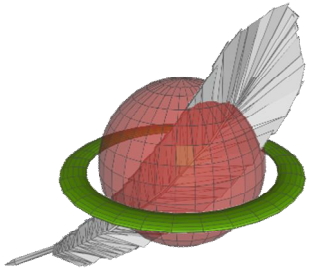
Moodul AkvaGIS



Ava andmebaas **PVK_seire_2015.sqlite**

AkvaGIS Hüdrogeoloogia andmebaas

Horizon 2020
European Union Funding
for Research & Innovation



- AkvaGIS
  - **Points**
  - HydroChemistry
    - **Campaigns**
    - **HydrochemicalSamples**
    - **HydrochemicalMeasurements**
    - **ListHydrochemicalParametersCode**
    - **ListCampaignType**
  - **HydrogeologicalUnitsApparence**
  - HydroGeology
    - **Wells**
    - **HydrogeologicalPointsObservations**
    - **HydrogeologicalPointsMeasurements**
    - **ListHydrogeologicalParametersCode**
    - **WellsHydrogeologicalUnit**
    - **HydrogeologicalUnits**
    - **ListHydroUnitType**
  - **Normatives**
  - **HydrochemicalNormativeParameters**
  - **ListUnitOfMeasurements**
  - **Processes**
  - **ResponsibleParties**
  - **Citations**
  - **ListStatusCode**
  - **ListActivityType**
  - **Projects**
  - **ListGeometrySourceType**
  - **ReferenceSystems**
  - **ListPointType**
  - **ListResultsQualityCode**
  - **ListResultsNatureType**
  - **TimeMetadata**
  - **ListFunctionCode**

Create AkvaGIS database loob uue andmebaasistruktuuri

Administratiivsed andmeid:

Projektid, asutused, laborid, normatiivid

Hüdrogeoloogilised andmed:

- Kaevud, allikad, piesomeetrid
- Kaevu konstruktsiooni andmed
- Mõõtmistulemused (veetase, tootlikkus)
- Põhjaveekihid
- Põhjaveekihte iseloomustavad parameetrid

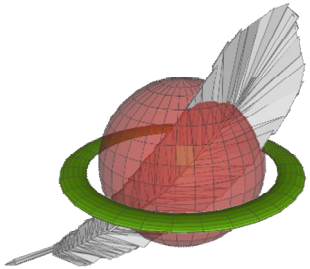
Hüdrogeokeemiline andmestik:

- Füüsikalis-keemilised parameetrid
- Seirekavad
- Laborid

TARTU ÜLIKOOL
geoloogia osakond
1632

AkvaGIS Hüdrogeoloogia andmebaas

Horizon 2020
European Union Funding
for Research & Innovation



- AkvaGIS
  - **Points**
  - HydroChemistry
    - **Campaigns**
    - **HydrochemicalSamples**
    - **HydrochemicalMeasurements**
    - **ListHydrochemicalParametersCode**
    - **ListCampaignType**
  - **HydrogeologicalUnitsApparence**
  - HydroGeology
    - **Wells**
    - **HydrogeologicalPointsObservations**
    - **HydrogeologicalPointsMeasurements**
    - **ListHydrogeologicalParametersCode**
    - **WellsHydrogeologicalUnit**
    - **HydrogeologicalUnits**
    - **ListHydroUnitType**
  - **Normatives**
  - **HydrochemicalNormativeParameters**
  - **ListUnitOfMeasurements**
  - **Processes**
  - **ResponsibleParties**
  - **Citations**
  - **ListStatusCode**
  - **ListActivityType**
  - **Projects**
  - **ListGeometrySourceType**
  - **ReferenceSystems**
  - **ListPointType**
  - **ListResultsQualityCode**
  - **ListResultsNatureType**
  - **TimeMetadata**
  - **ListFunctionCode**

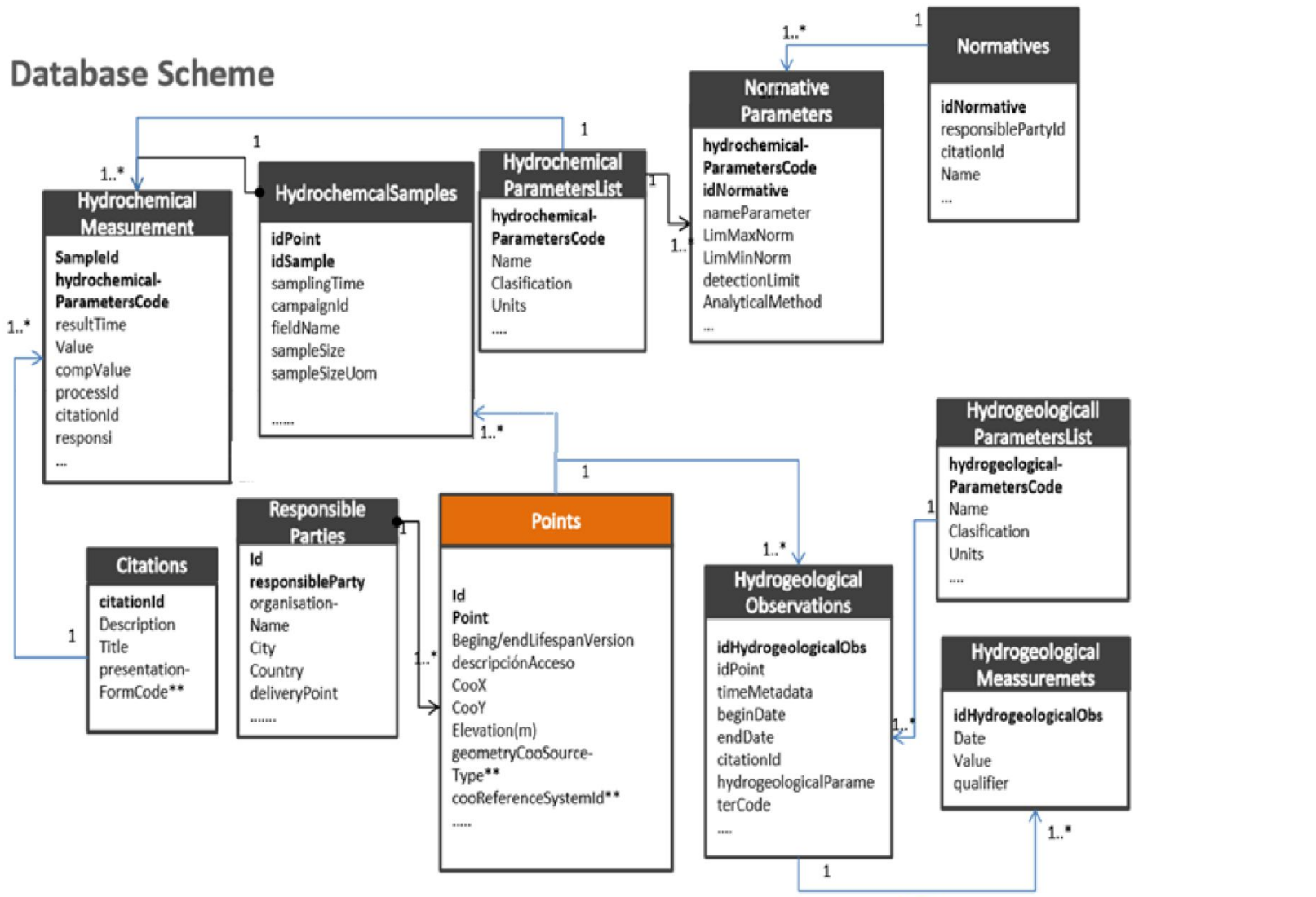
Andmestruktuuri loomisel on lähtutud erinevatest standarditest:

- INSPIRE Directive (2007/2/EC)
- Observation and Measurement (ISO19156)
- OGC WaterML2.0
- GeoSciMLv3.1.

TARTU ÜLIKOOL
1632
geoloogia osakond

AkvaGIS Hüdrogeoloogia andmebaas

Horizon 2020
European Union Funding
for Research & Innovation

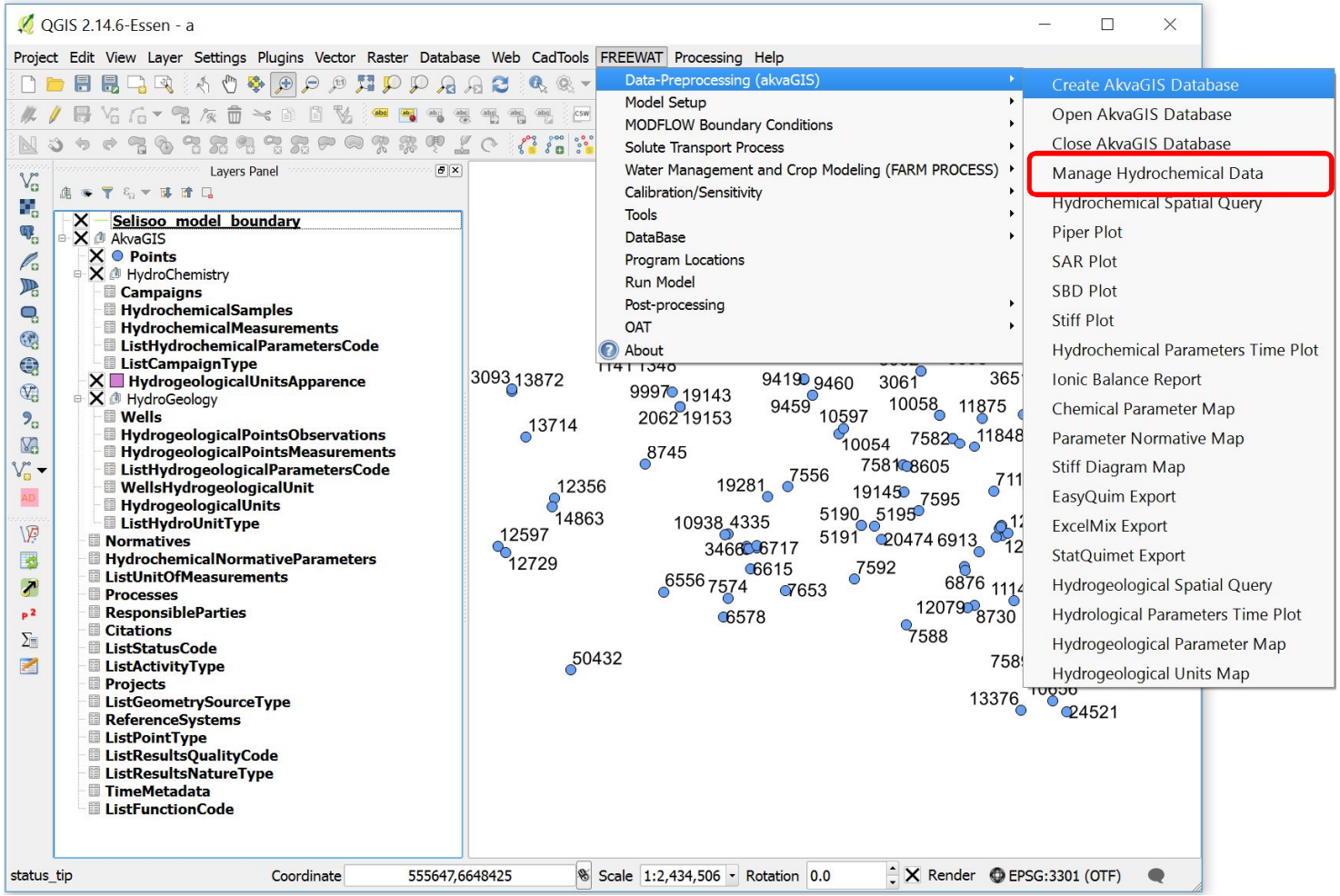


TARTU ÜLIKOOL
geoloogia osakond
1632

Moodul AkvaGIS

Horizon 2020
European Union Funding
for Research & Innovation

Uute andmete lisamine andmebaasi

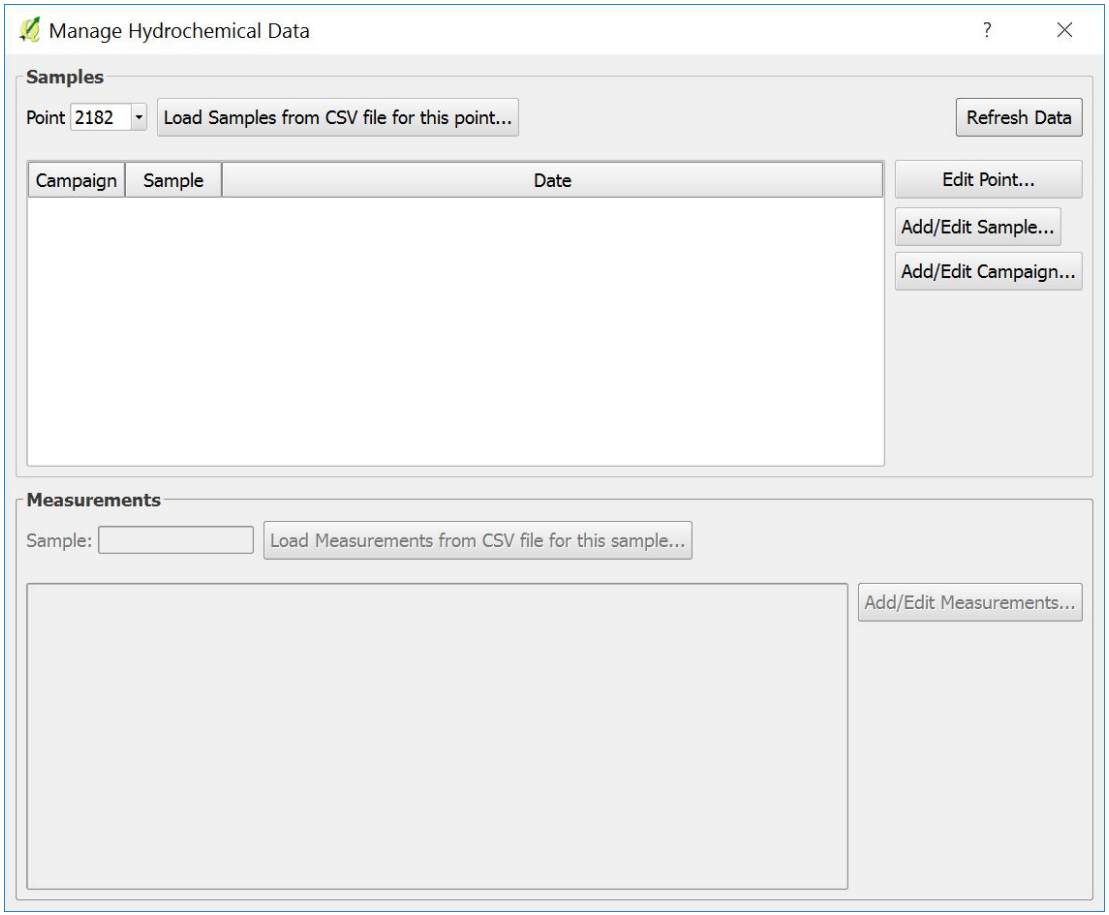


TARTU ÜLIKOOL
geoloogia osakond
1632

Moodul AkvaGIS

Horizon 2020
European Union Funding
for Research & Innovation

Uute andmete lisamine andmebaasi



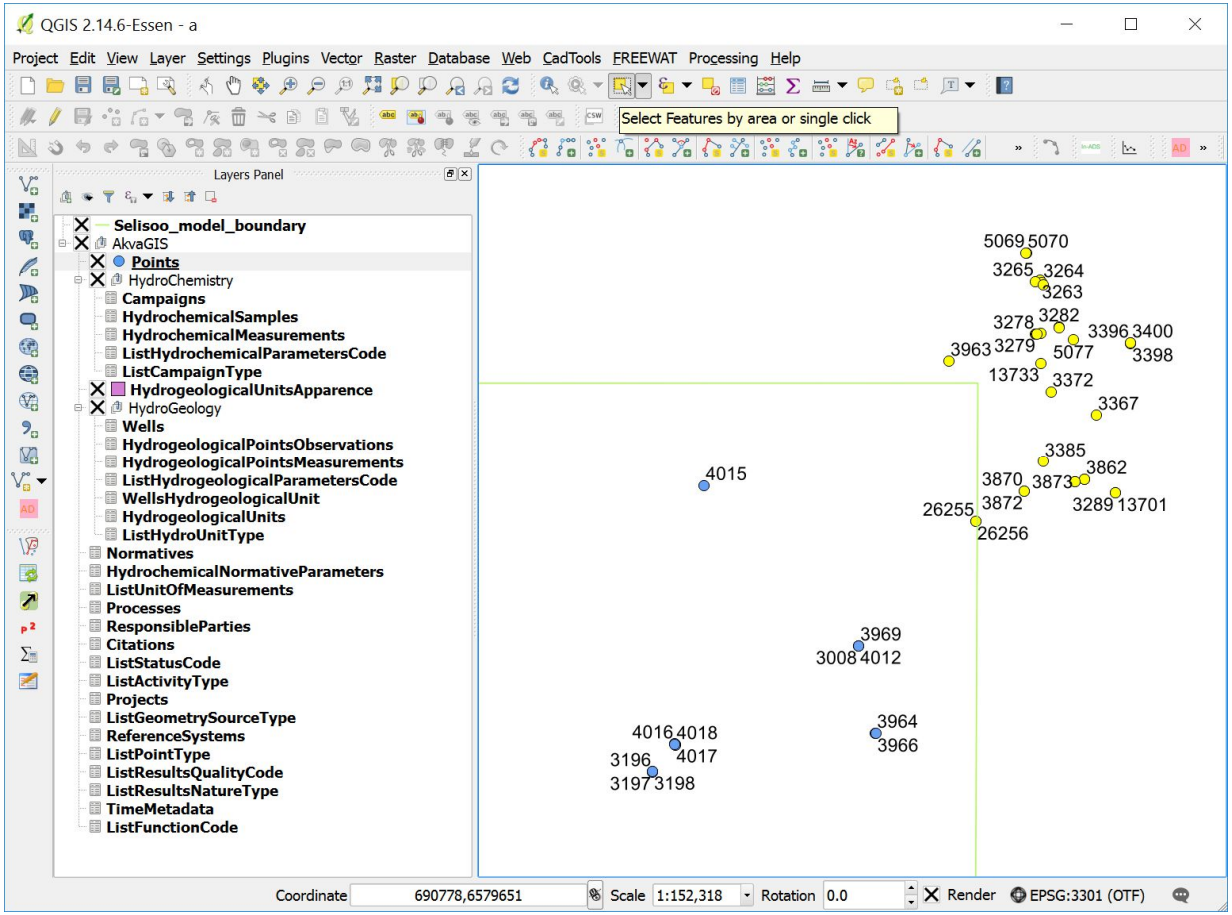
TARTU ÜLIKOOL
geoloogia osakond
1632

Moodul AkvaGIS

Horizon 2020
European Union Funding
for Research & Innovation

Hüdrokeemia ruumipäringu koostamine

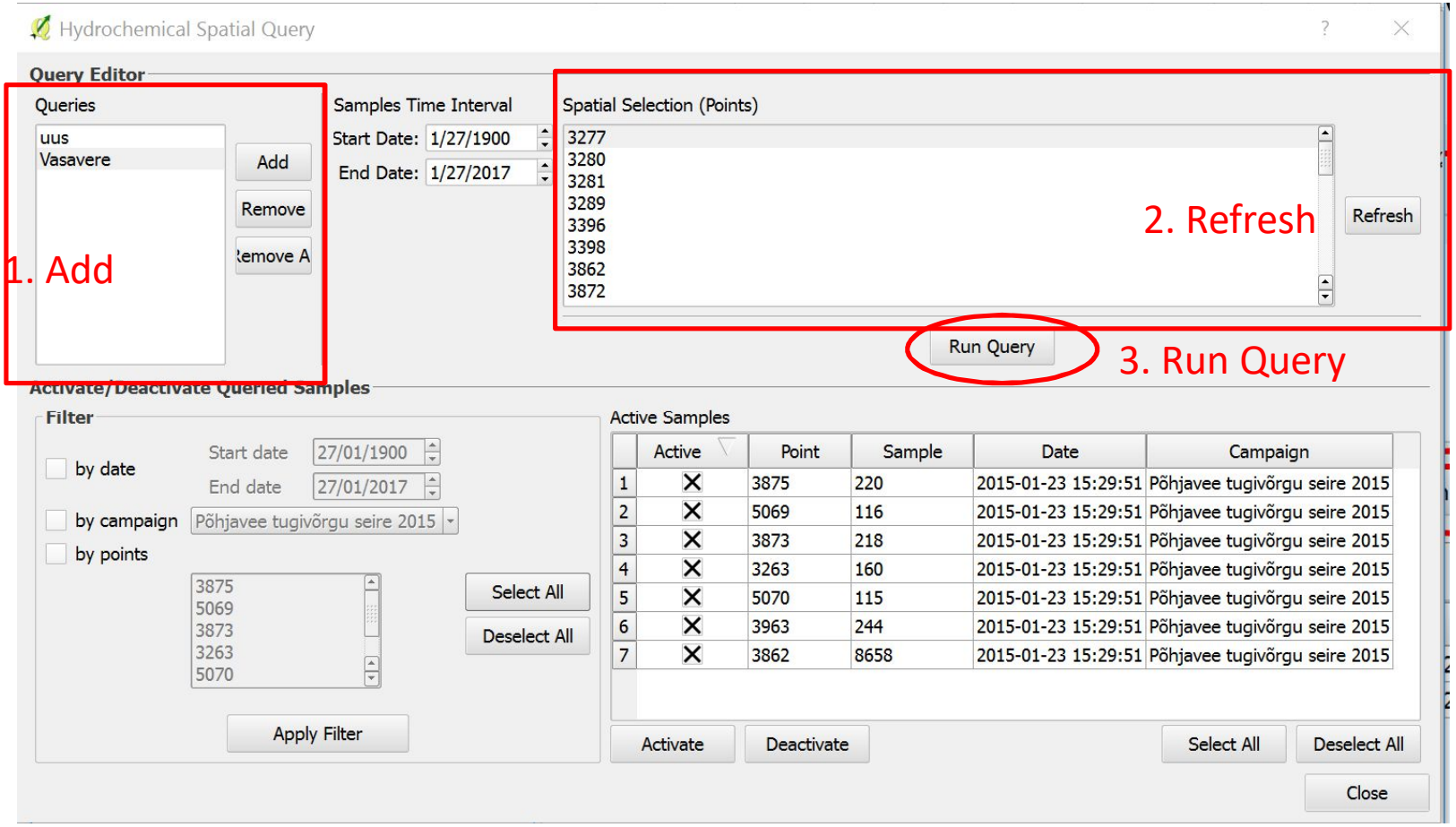
Esmalt tuleb kaardilt selekteerida soovitud kaevud (Points)



TARTU ÜLIKOOL
geoloogia osakond
1632

Moodul AkvaGIS

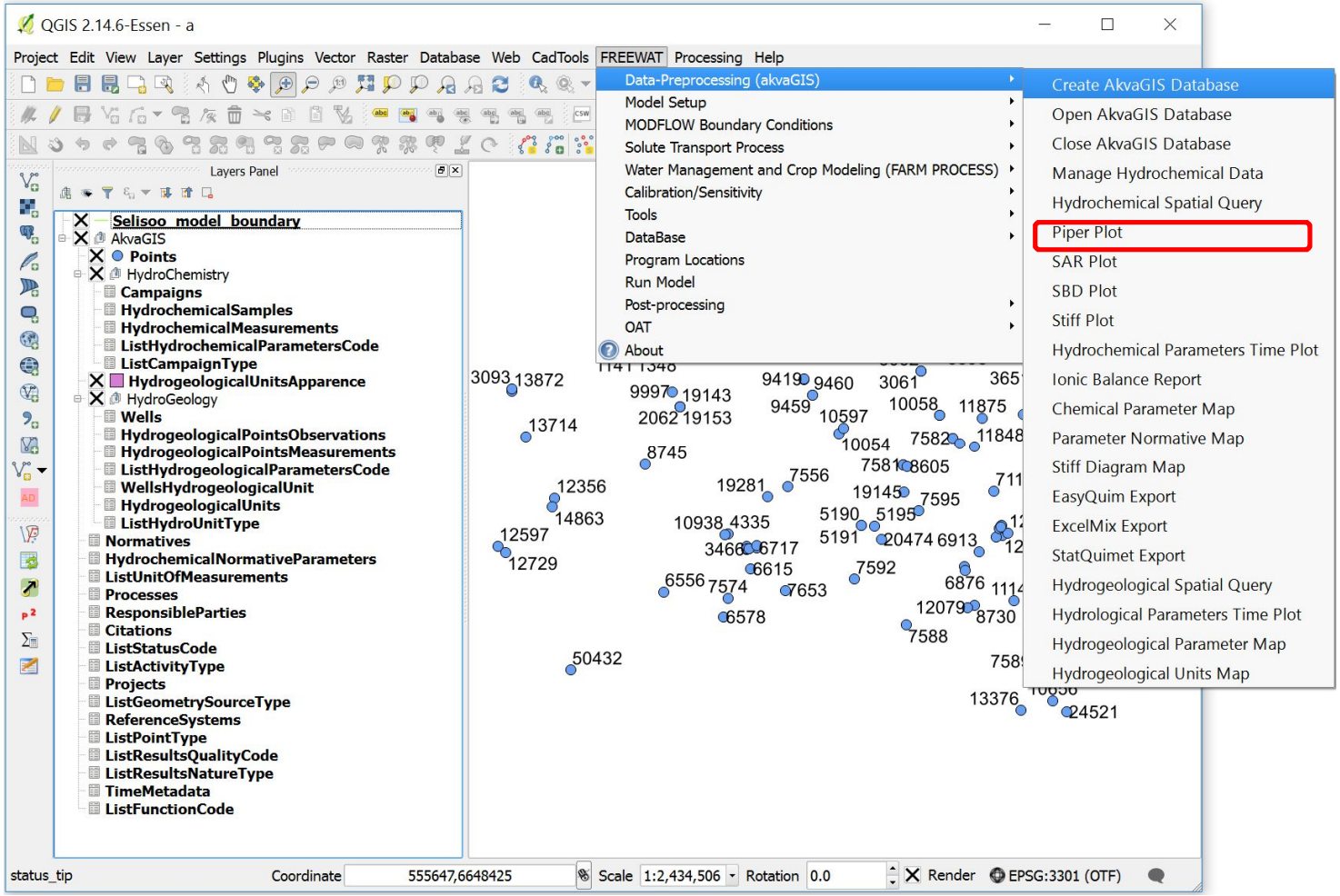
Hüdrokeemia ruumipäringu koostamine



Moodul AkvaGIS

Horizon 2020
European Union Funding
for Research & Innovation

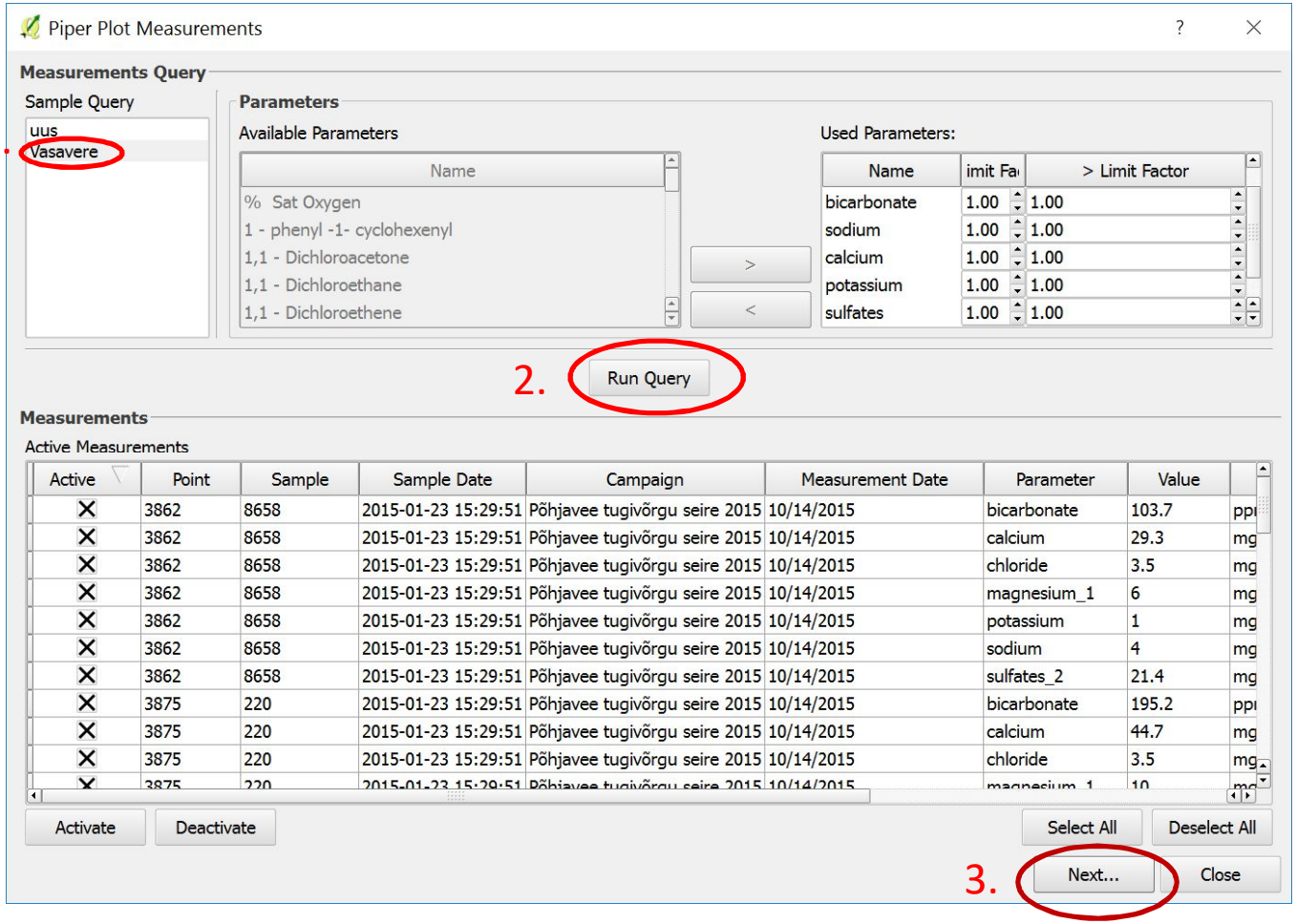
Piper'i diagramm



TARTU ÜLIKOOL
geoloogia osakond
1632

Moodul AkvaGIS

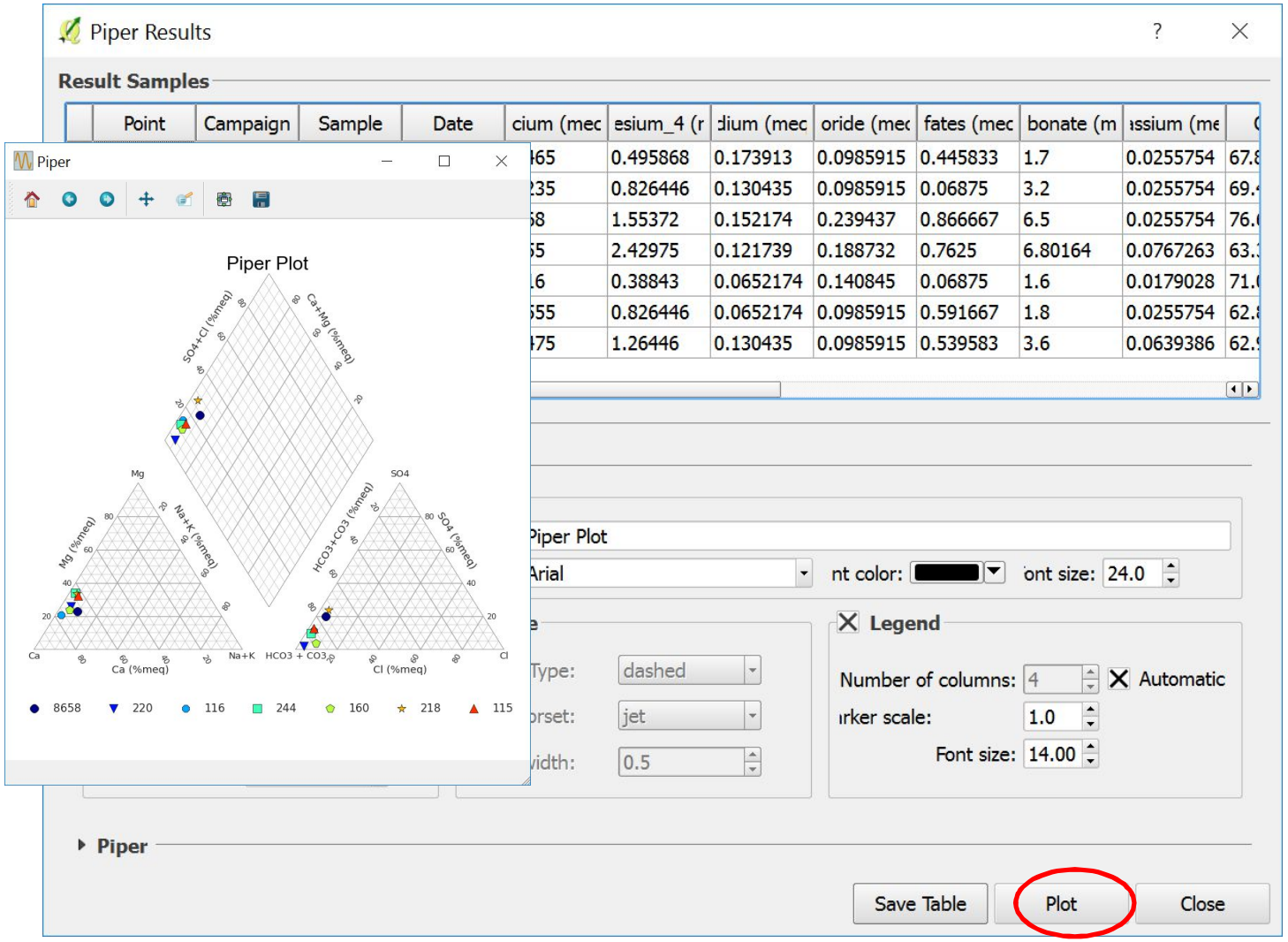
Piper'i diagramm



Moodul AkvaGIS

Horizon 2020
European Union Funding
for Research & Innovation

Piper'i diagramm

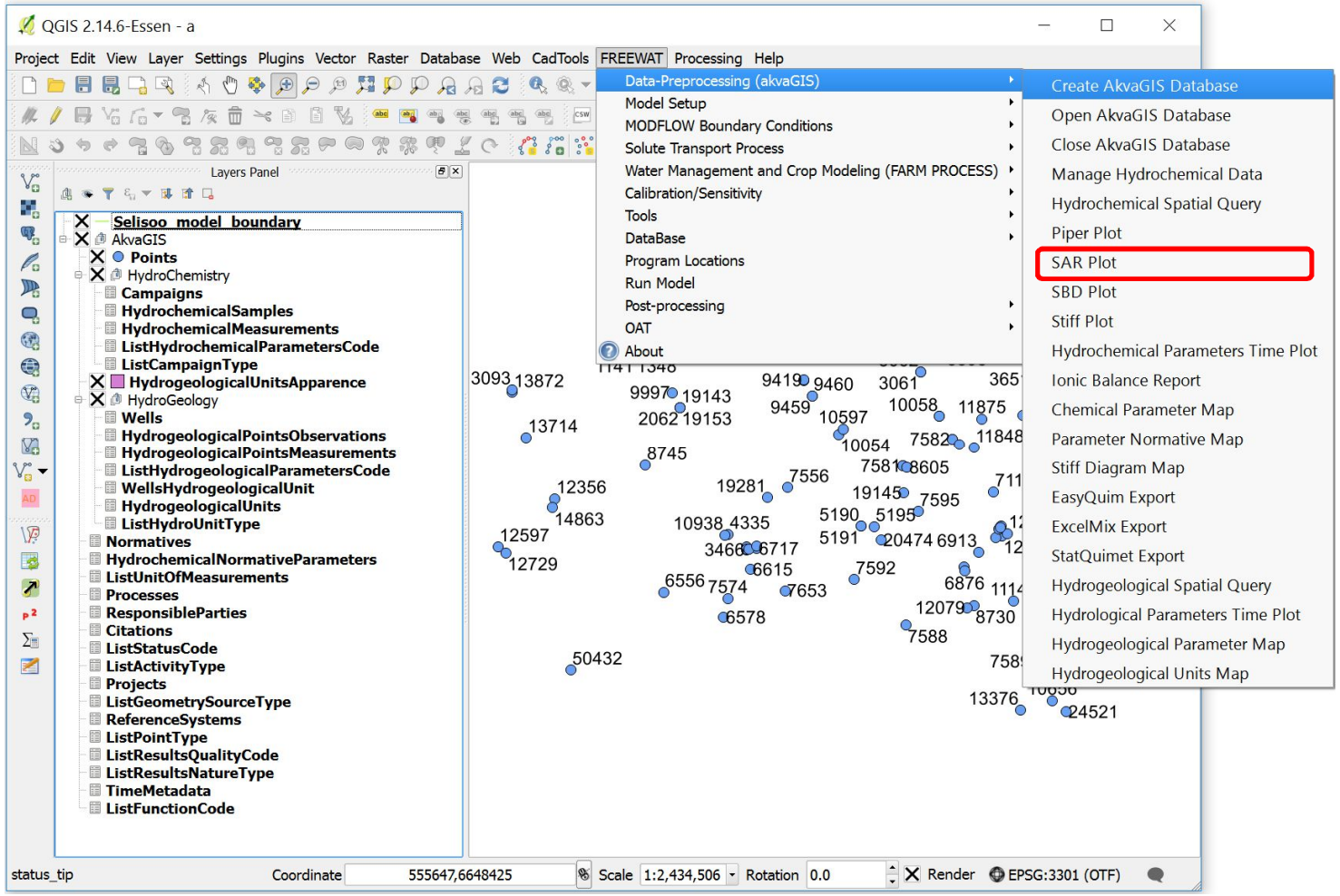


TARTU ÜLIKOOL
geoloogia osakond
1632

Moodul AkvaGIS

Horizon 2020
European Union Funding
for Research & Innovation

Soolsuse diagramm (SAR)

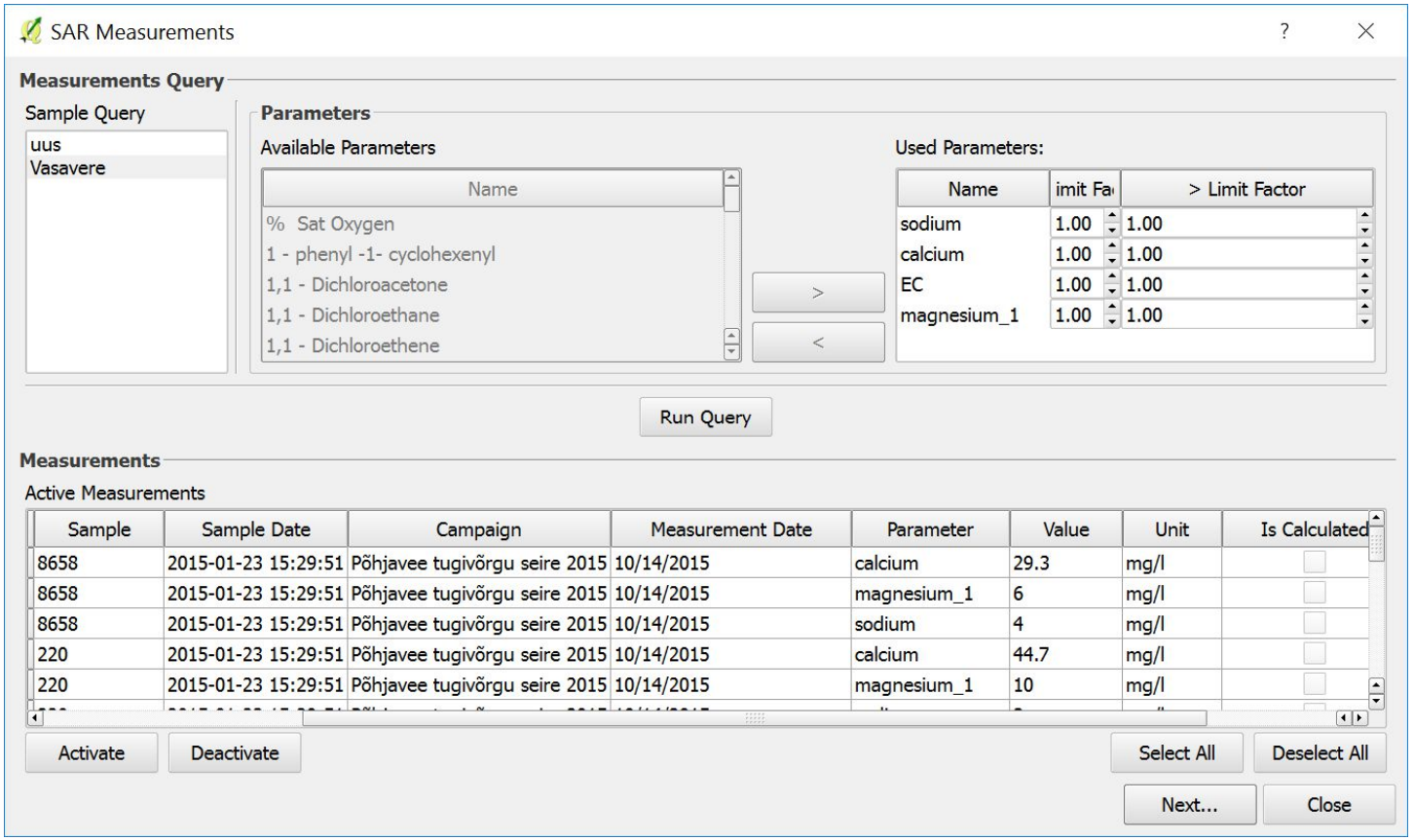


TARTU ÜLIKOOL
geoloogia osakond
1632

Moodul AkvaGIS

Horizon 2020
European Union Funding
for Research & Innovation

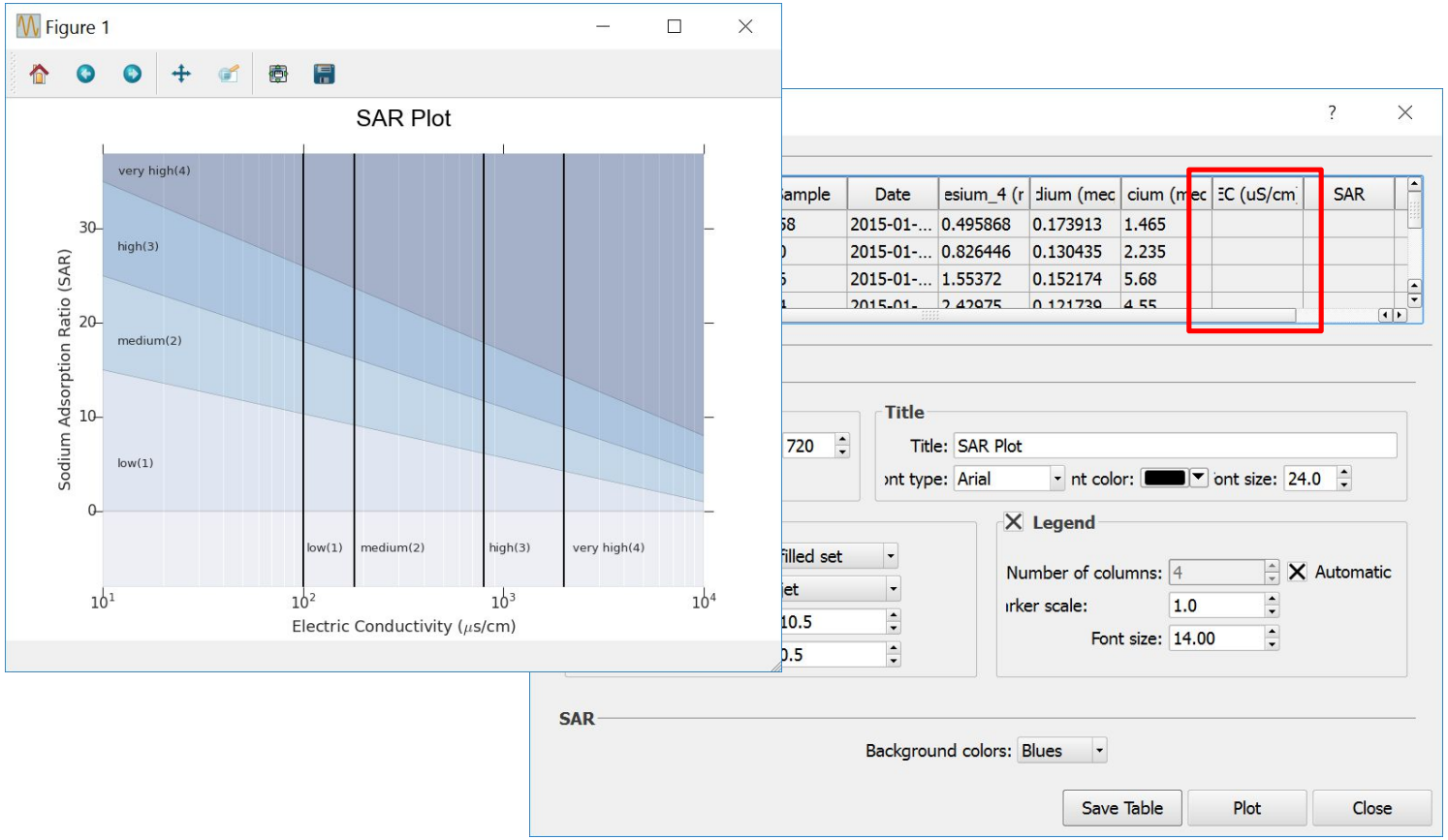
Soolsuse diagramm (SAR)



Moodul AkvaGIS

Horizon 2020
European Union Funding
for Research & Innovation

Soolsuse diagramm (SAR)



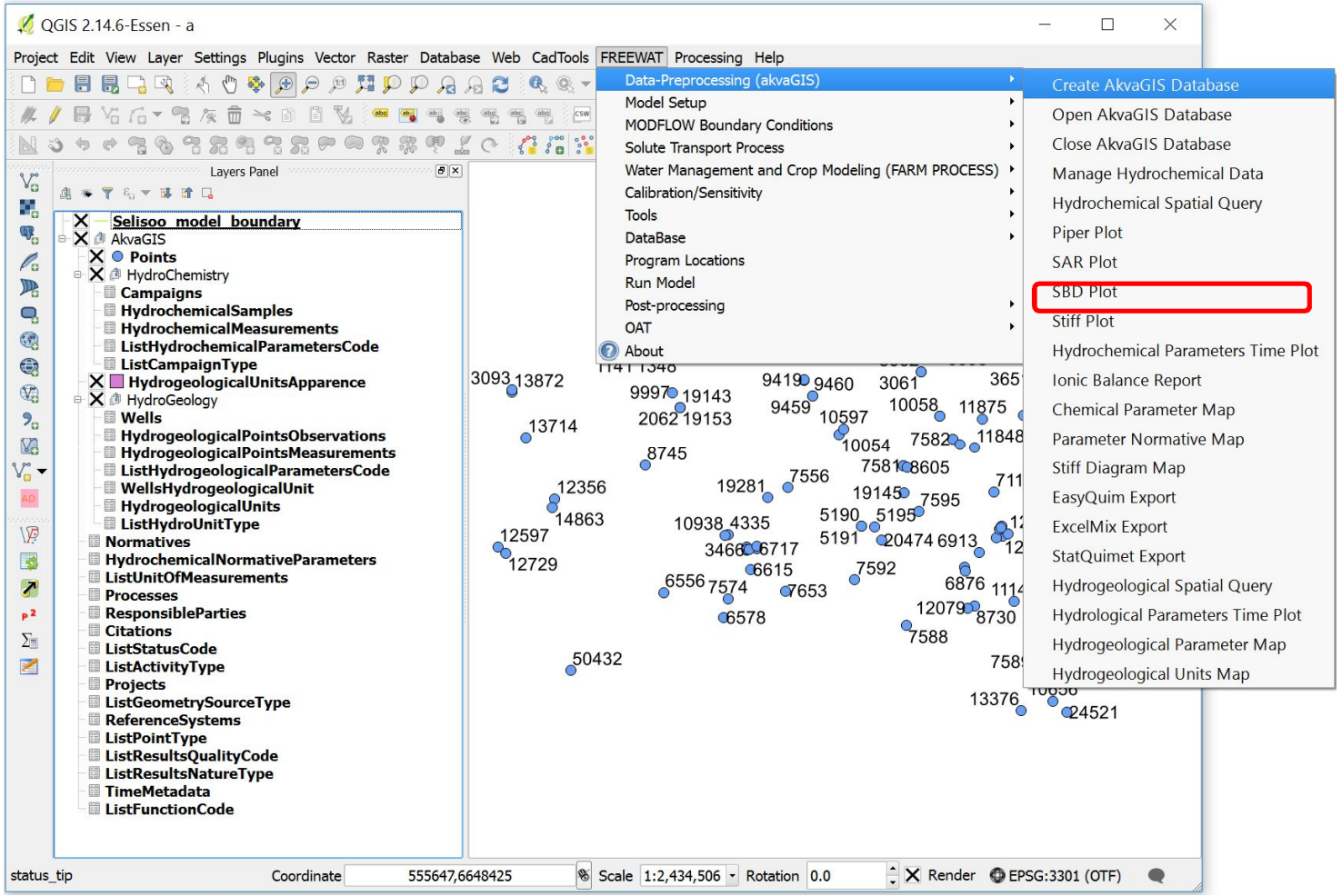
Joonisele andmeid ei kuvata, sest andmebaasis puuduvad andmed elektrijuhtivuse kohta!

TARTU ÜLIKOOL
geoloogia osakond
1632

Moodul AkvaGIS

Horizon 2020
European Union Funding
for Research & Innovation

Schoeller Berkalof'i diagramm

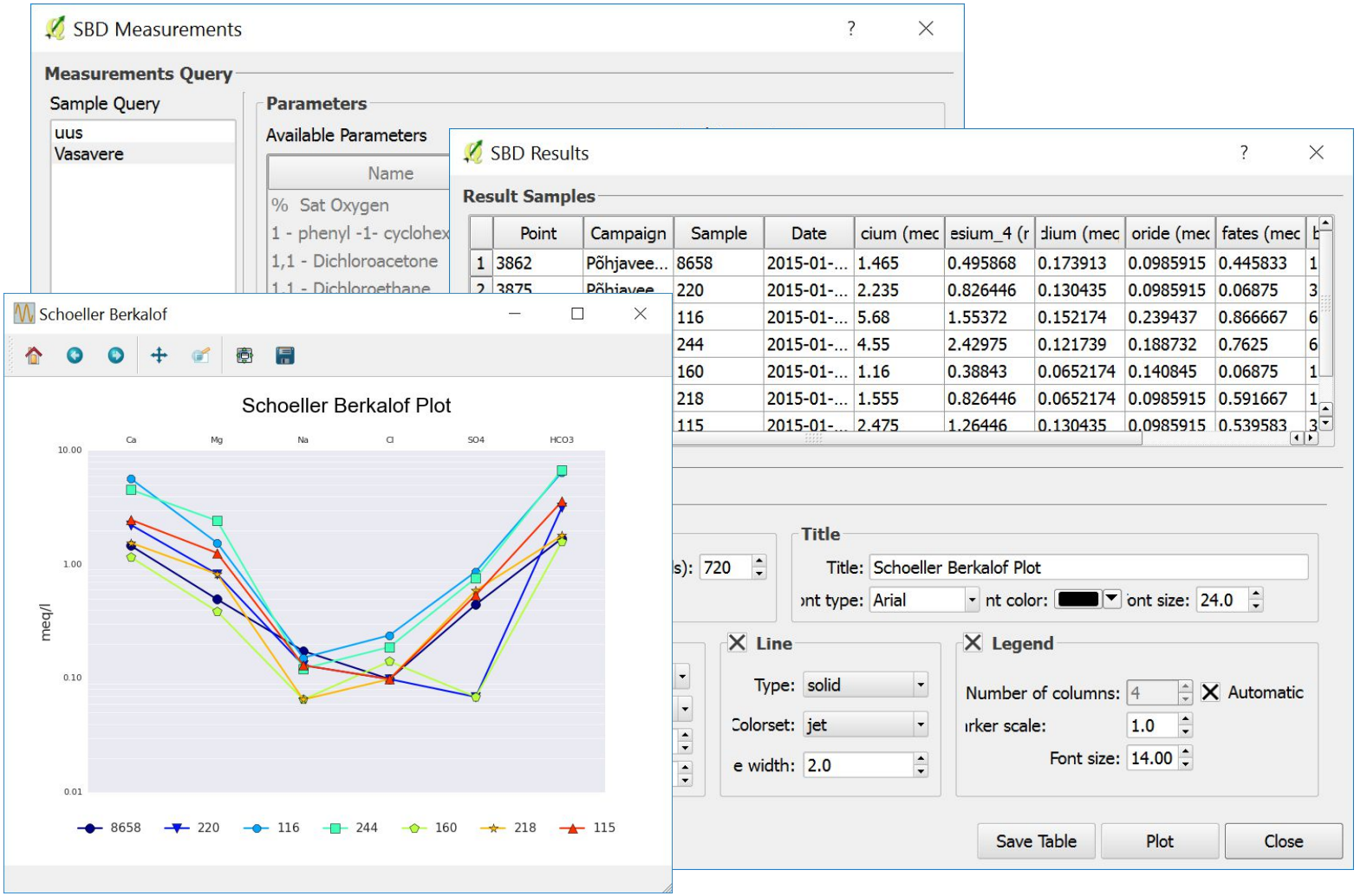


TARTU ÜLIKOOL
geoloogia osakond
1632

Moodul AkvaGIS

Horizon 2020
European Union Funding
for Research & Innovation

Schoeller Berkalof'i diagramm

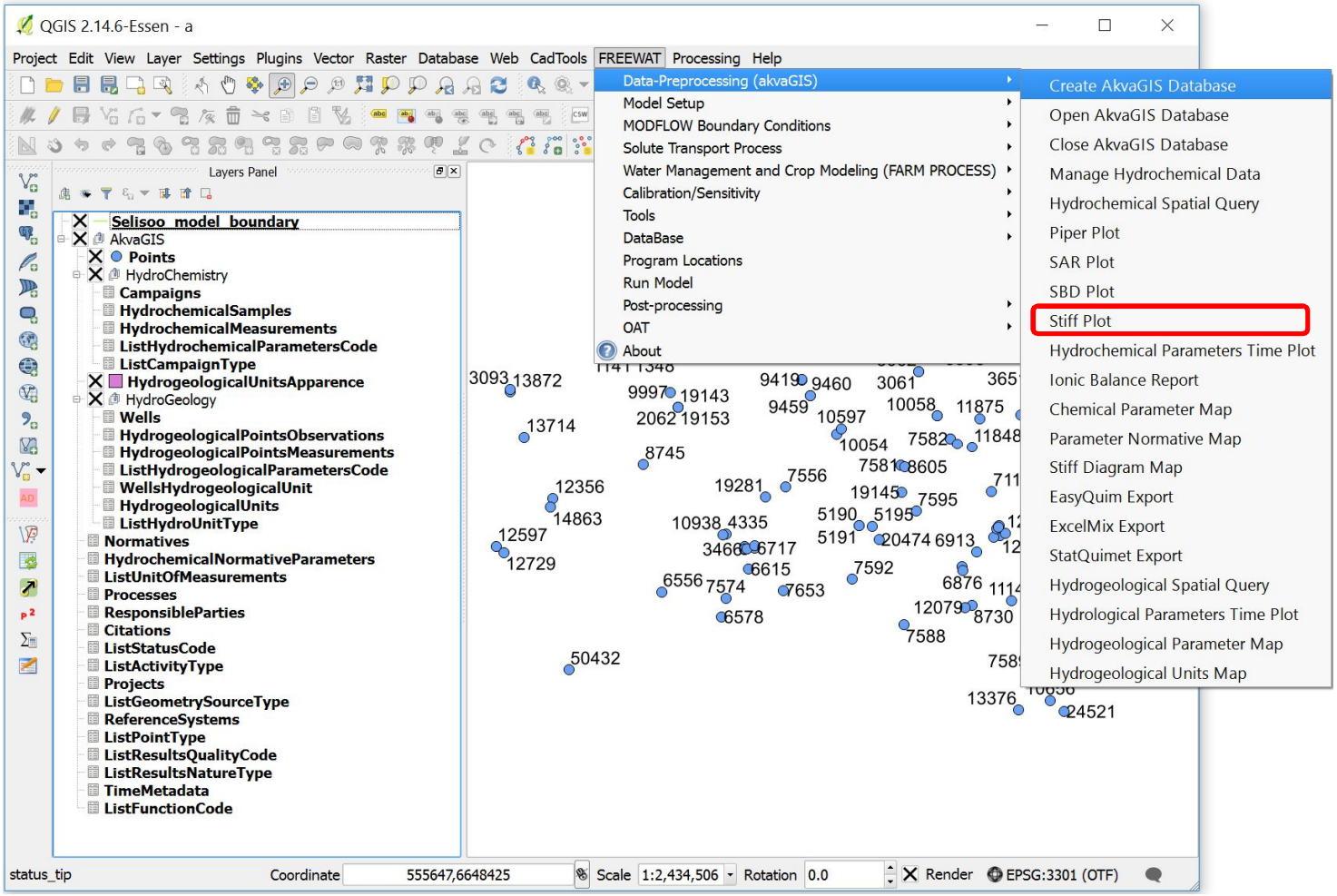


TARTU ÜLIKOOL
geoloogia osakond
1632

Moodul AkvaGIS

Horizon 2020
European Union Funding
for Research & Innovation

Stiff'i diagrammid

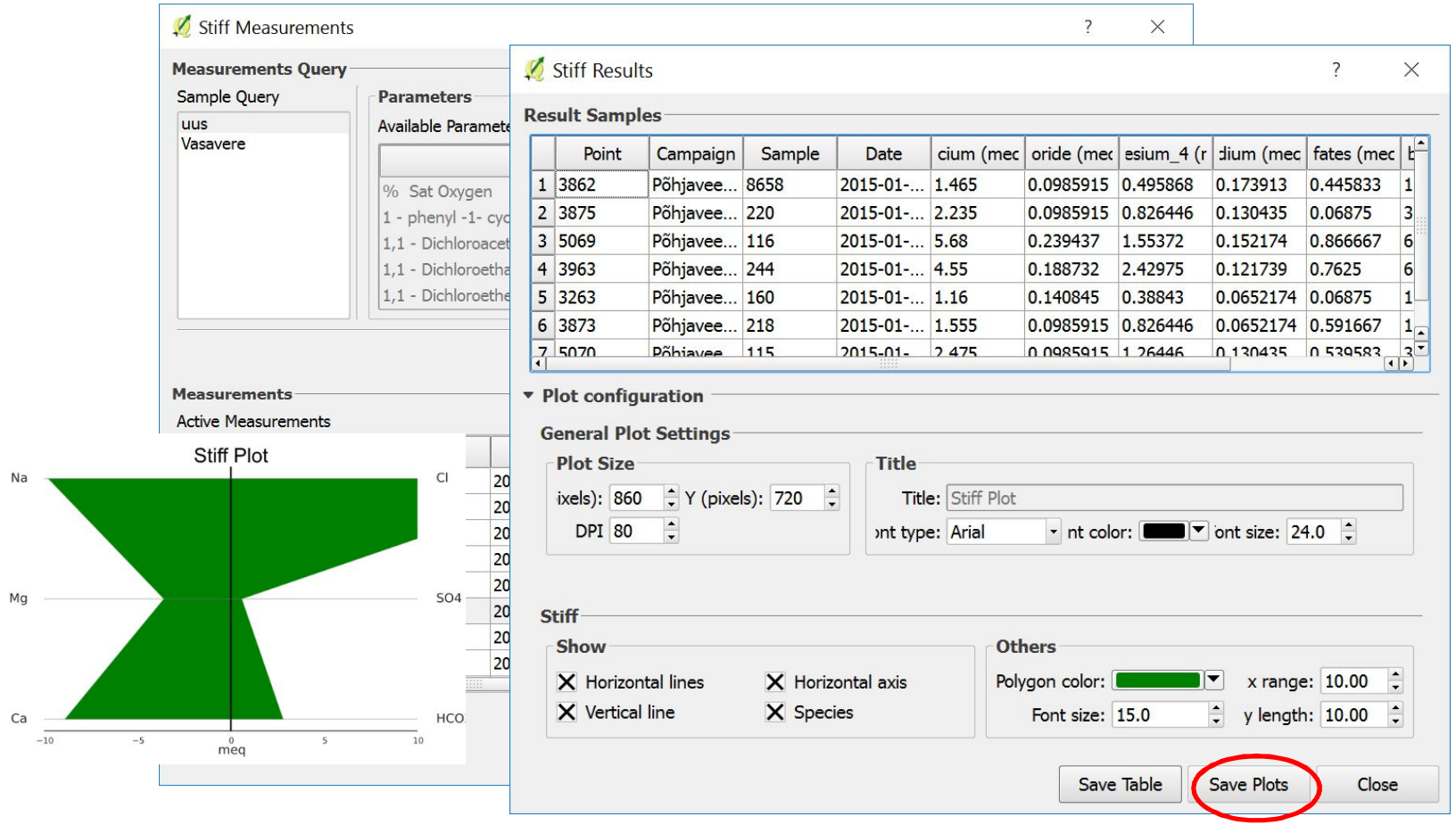


TARTU ÜLIKOOL
geoloogia osakond
1632

Moodul AkvaGIS

Horizon 2020
European Union Funding
for Research & Innovation

Stiff'i diagrammid



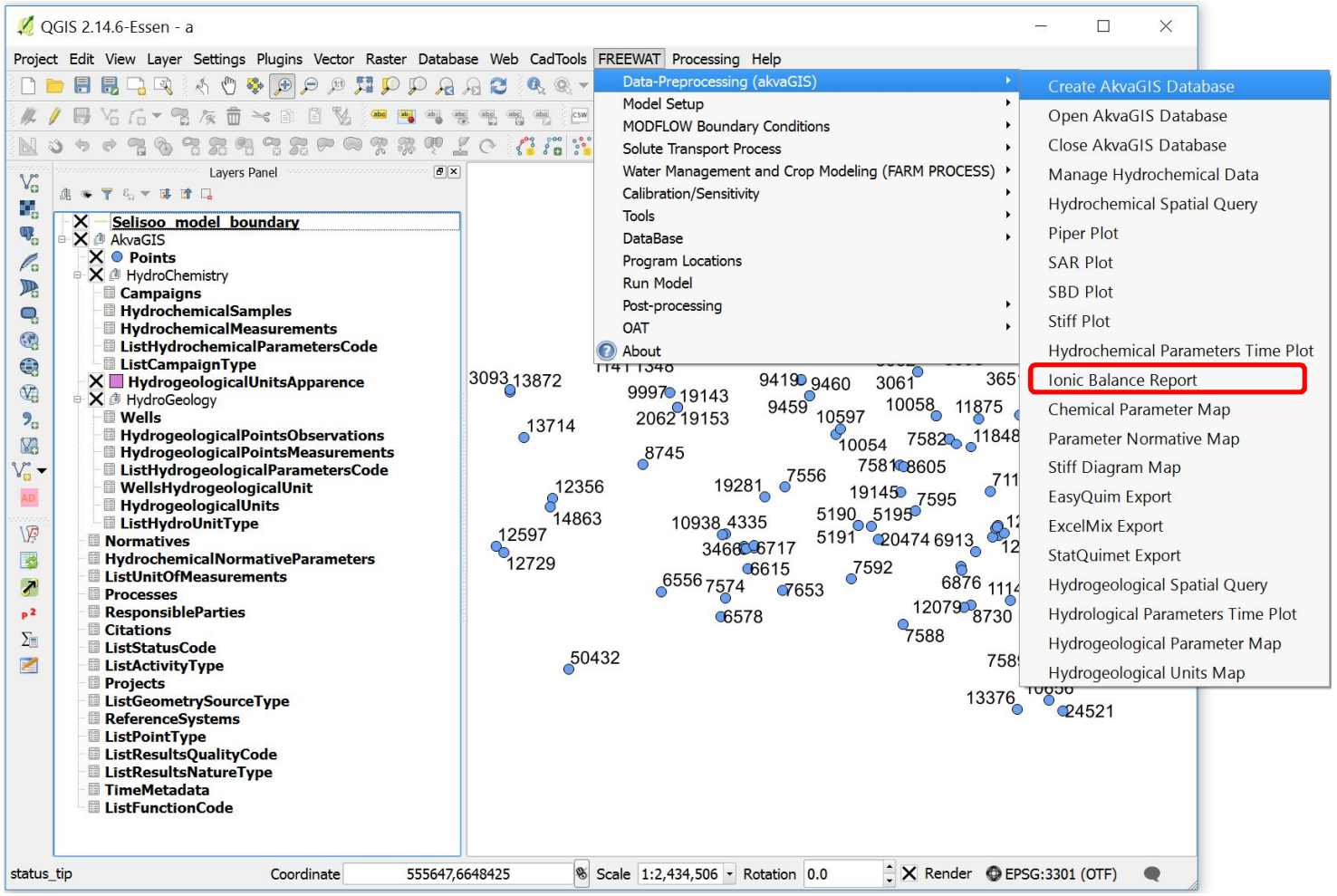
Iga veeproovi kohta luuakse Stiff'i diagramm, mis salvestatakse eraldi pildifaili.

TARTU ÜLIKOOL
geoloogia osakond
1632

Moodul AkvaGIS

Horizon 2020
European Union Funding
for Research & Innovation

Ioontasakaalu arvutamine

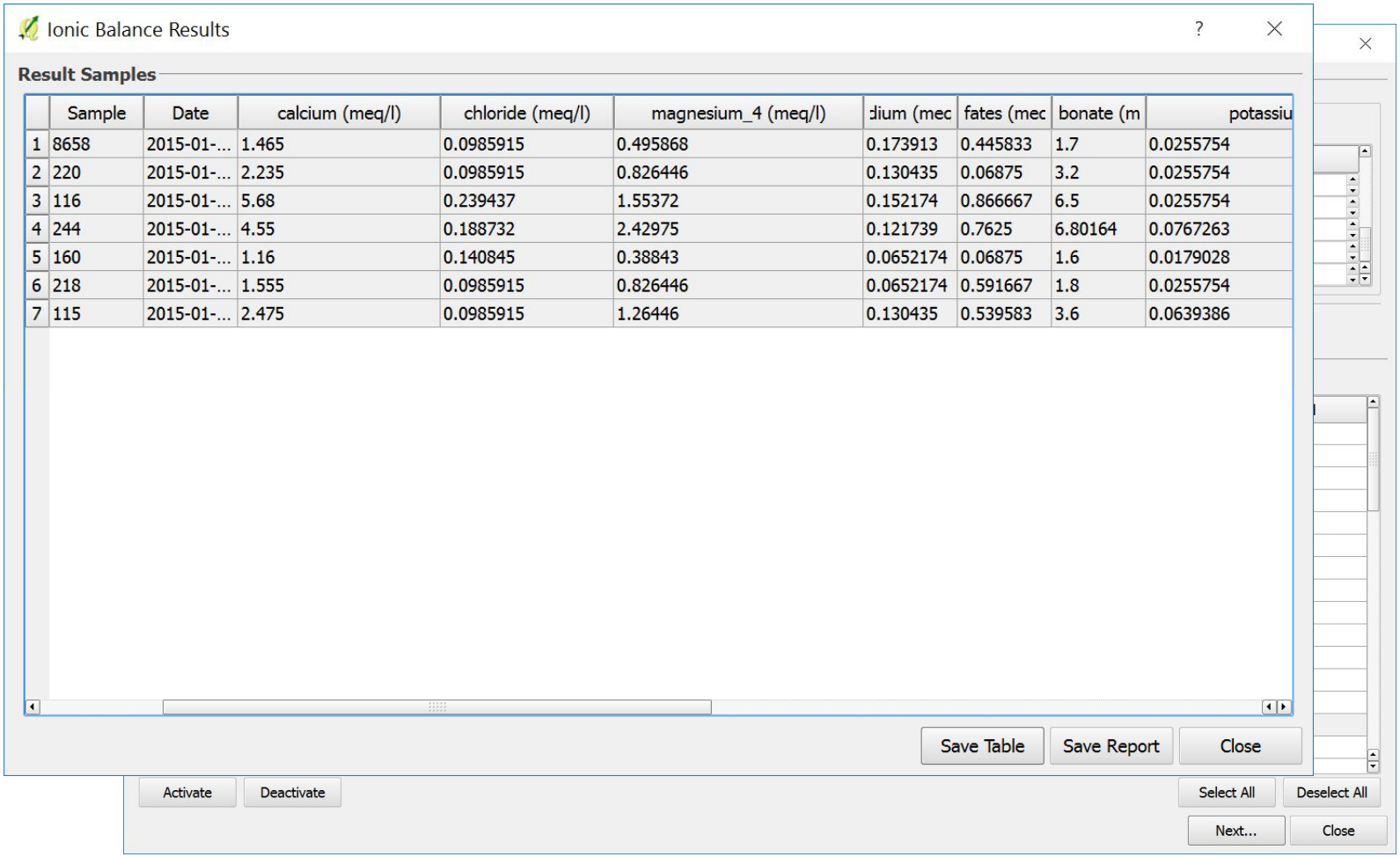


TARTU ÜLIKOOL
geoloogia osakond
1632

Moodul AkvaGIS

Horizon 2020
European Union Funding
for Research & Innovation

Ioontasakaalu arvutamine

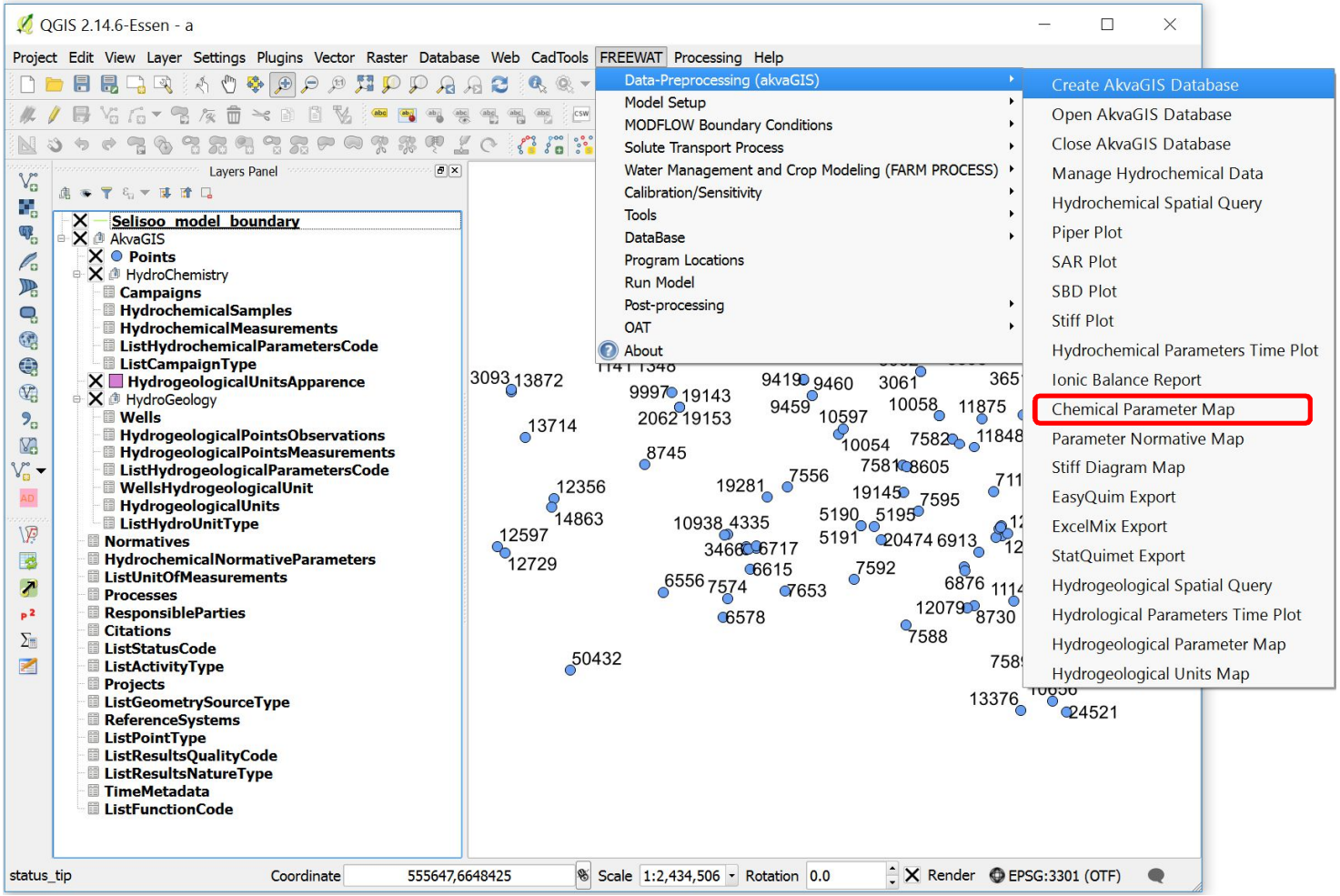


TARTU ÜLIKOOL
geoloogia osakond
1632

Moodul AkvaGIS

Horizon 2020
European Union Funding
for Research & Innovation

Teemakaardi loomine

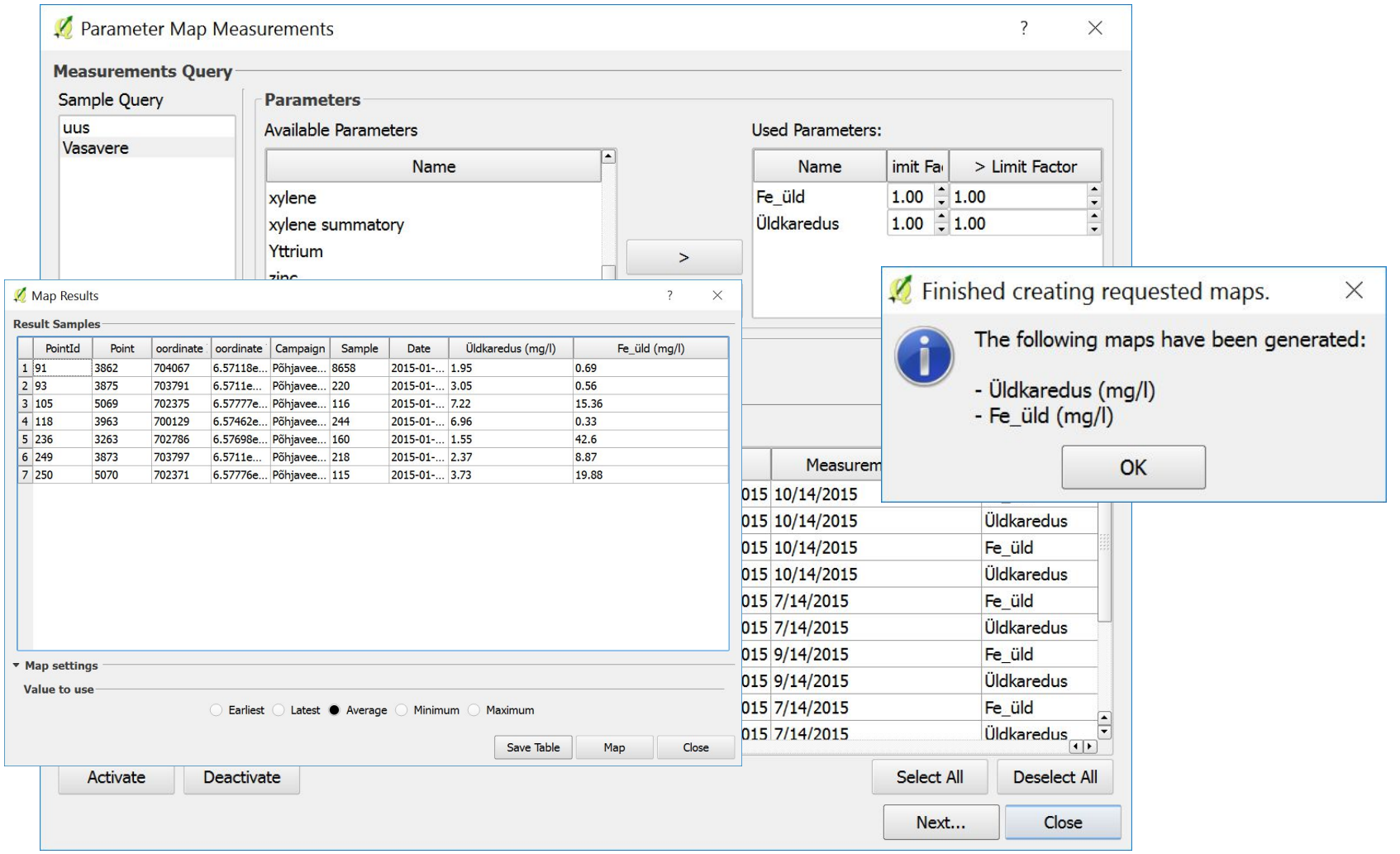


TARTU ÜLIKOOL
geoloogia osakond
1632

Moodul AkvaGIS

Horizon 2020
European Union Funding
for Research & Innovation

Teemakaardi loomine

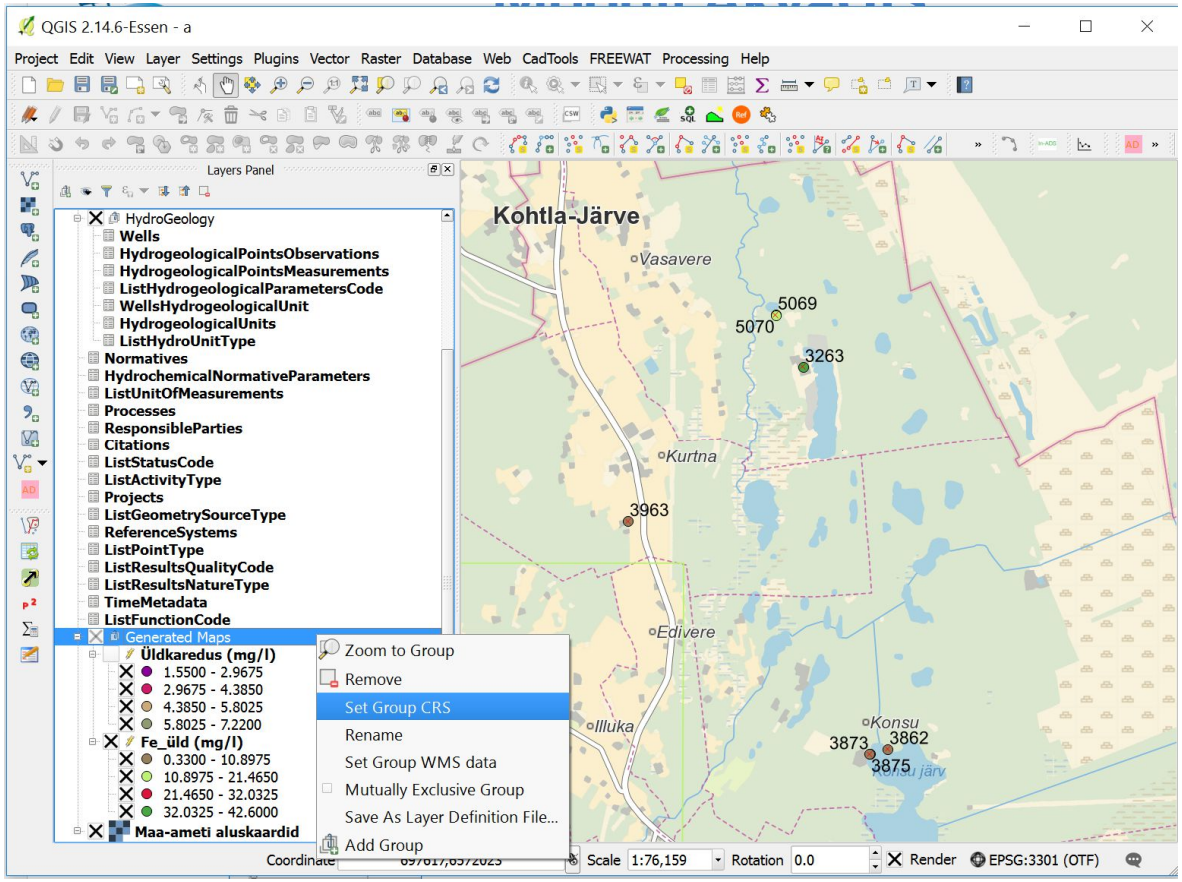


TARTU ÜLIKOOL
geoloogia osakond
1632

Moodul AkvaGIS

Horizon 2020
European Union Funding
for Research & Innovation

Teemakaardi loomine



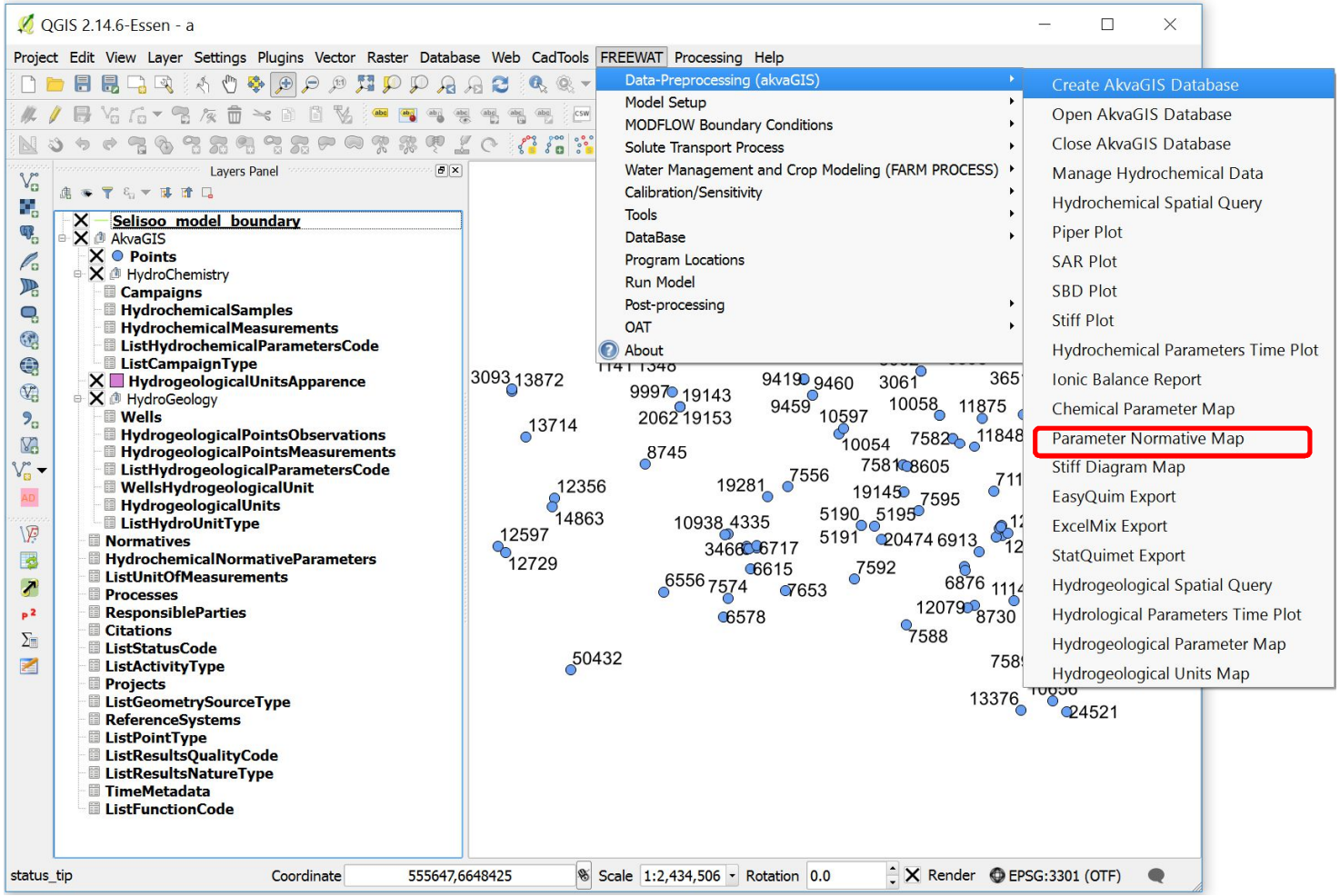
Kui teemakaardi punktid ei ilmu kaardile, siis võib põhjus olla projektsioonis!

TARTU ÜLIKOOL
geoloogia osakond
1632

Moodul AkvaGIS

Horizon 2020
European Union Funding
for Research & Innovation

Normatiivi alusel teemakaardi loomine

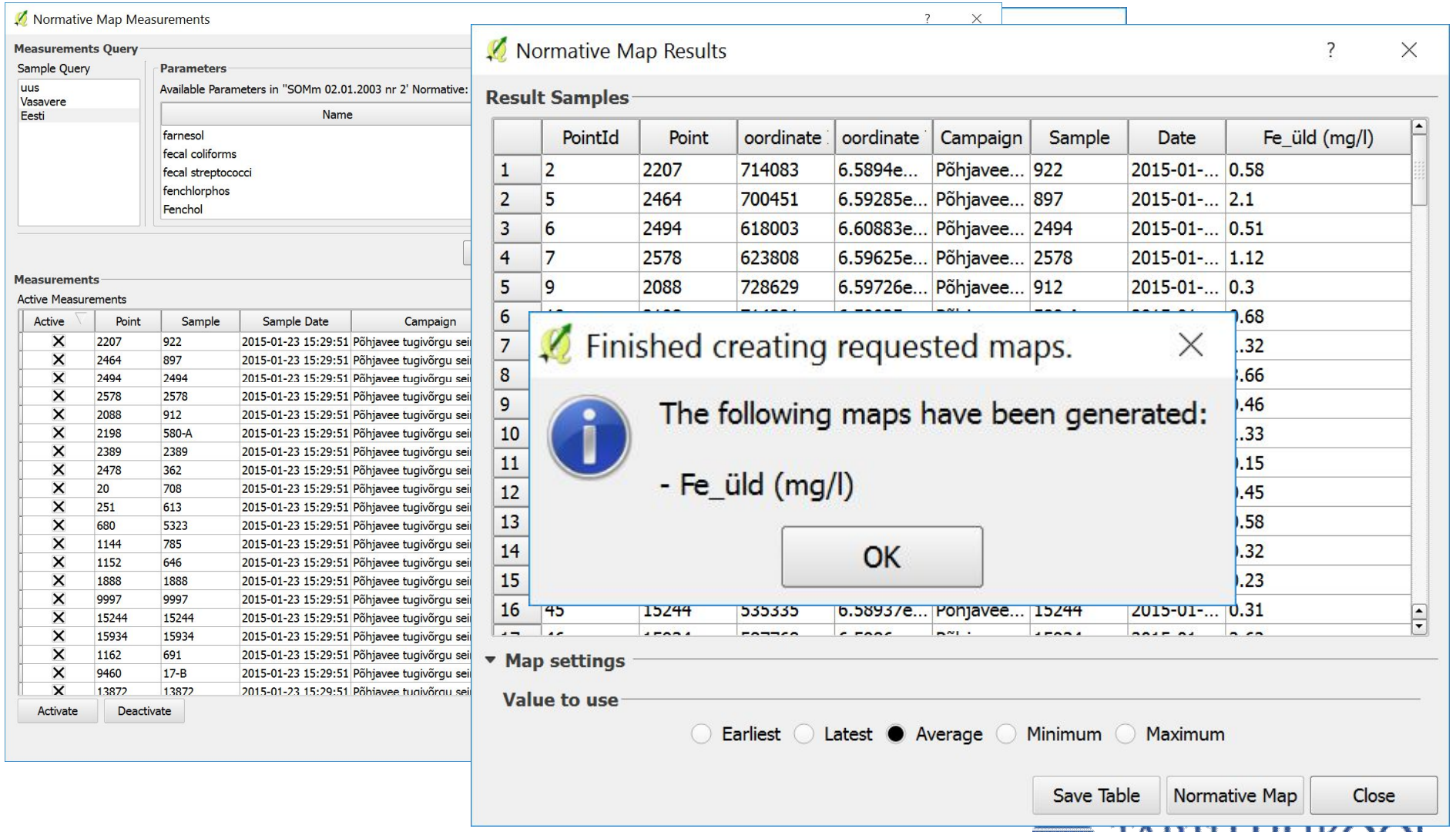


TARTU ÜLIKOOL
geoloogia osakond
1632

Moodul AkvaGIS

Horizon 2020
European Union Funding
for Research & Innovation

Normatiivi alusel teemakaardi loomine

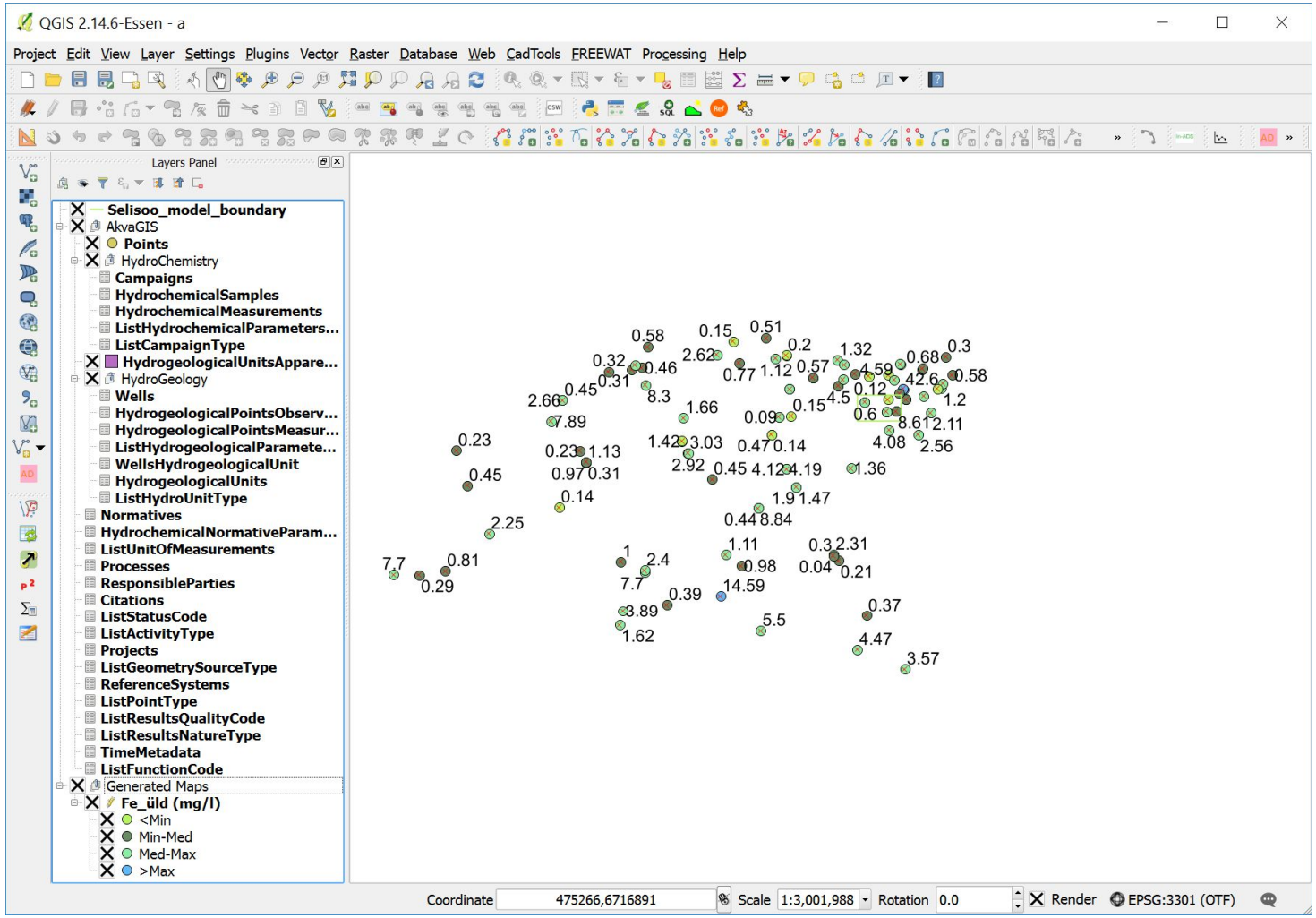


TARTU ÜLIKOOL
geoloogia osakond
1632

Moodul AkvaGIS

Horizon 2020
European Union Funding
for Research & Innovation

Normatiivi alusel teemakaardi loomine

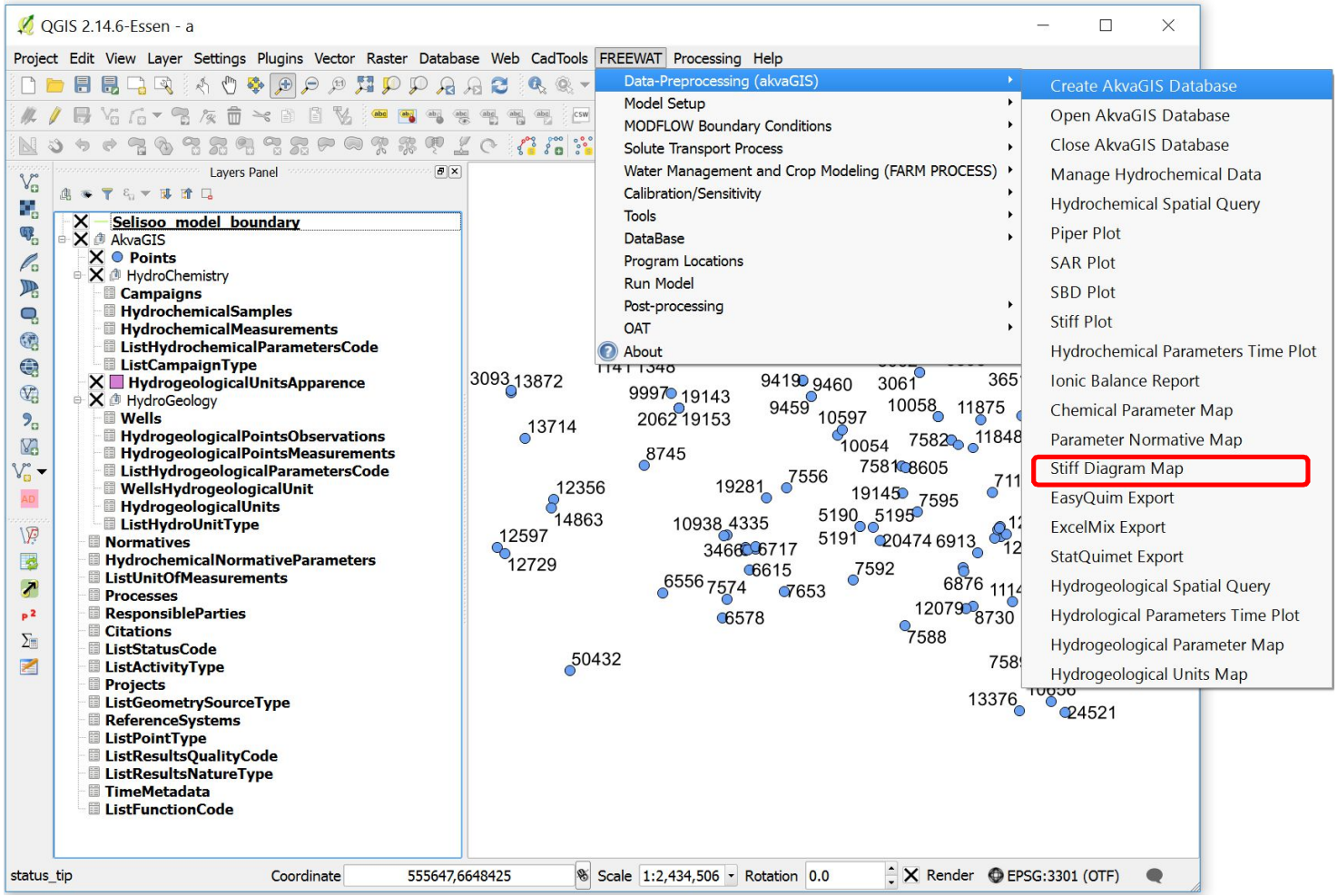


TARTU ÜLIKOOL
geoloogia osakond
1632

Moodul AkvaGIS

Horizon 2020
European Union Funding
for Research & Innovation

Teemakaardi loomine Stiff'i diagrammkaart

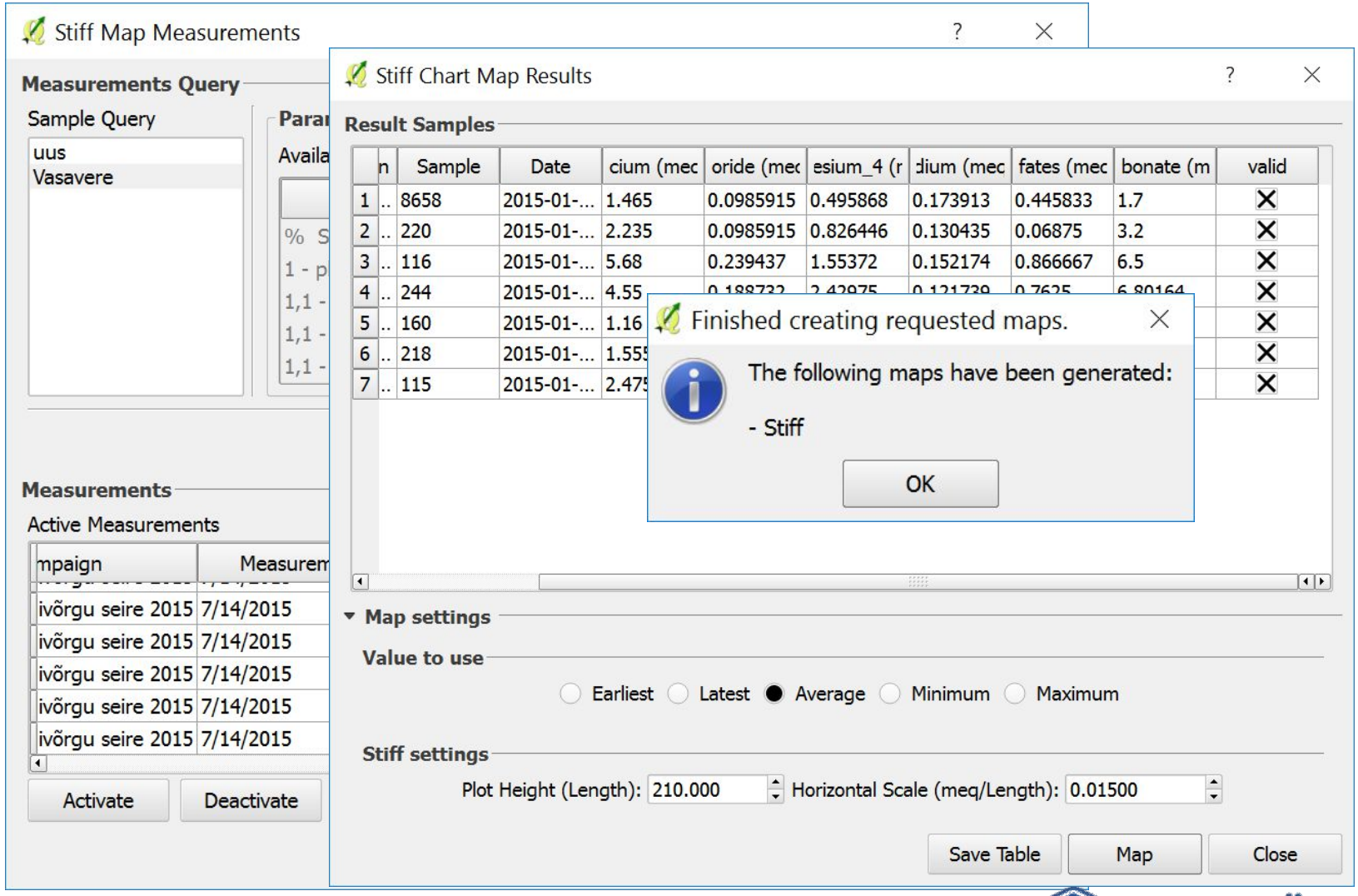


TARTU ÜLIKOOL
geoloogia osakond
1632

Moodul AkvaGIS

Horizon 2020
European Union Funding
for Research & Innovation

Stiffi diagramm

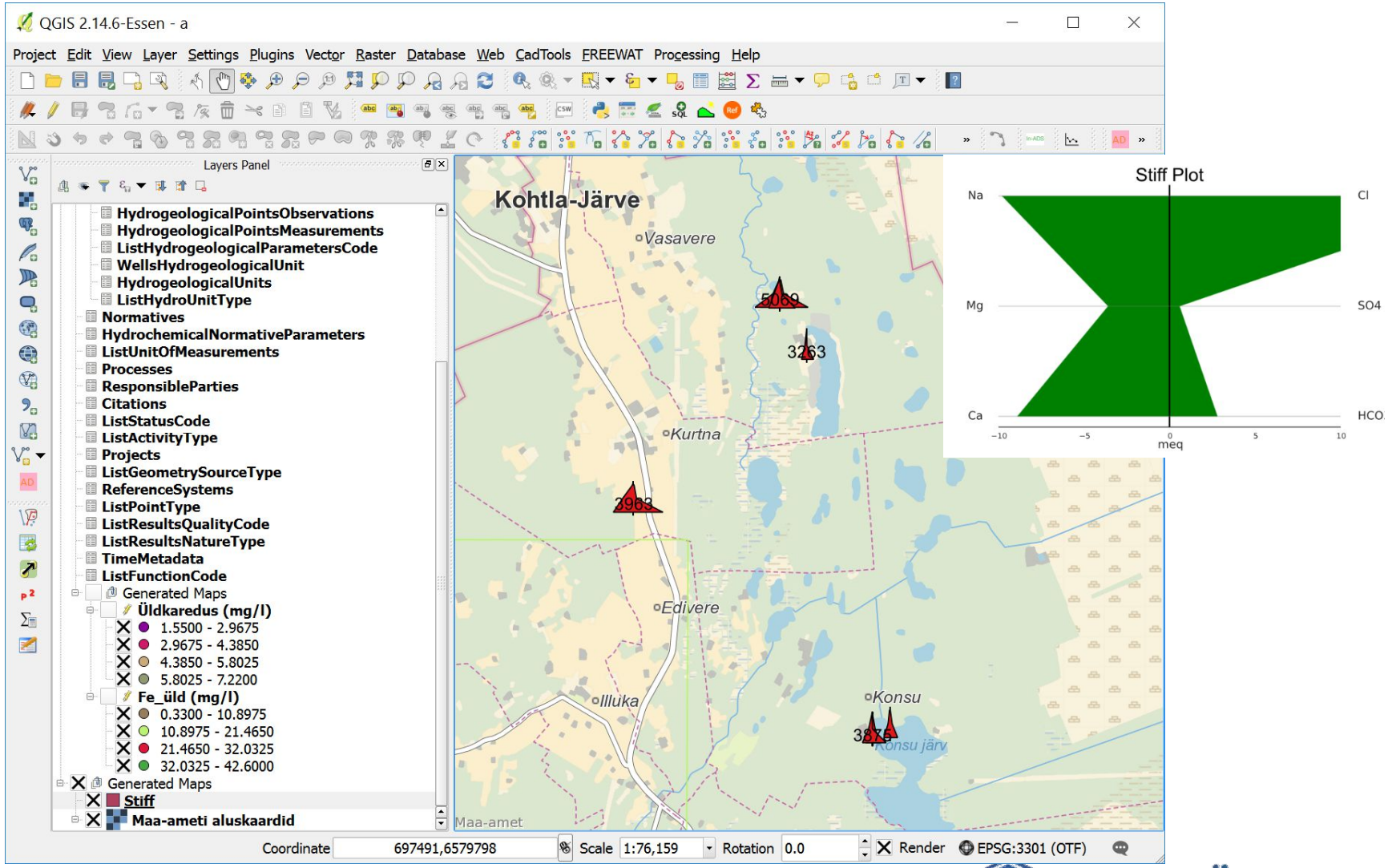


TARTU ÜLIKOOL
geoloogia osakond
1632

Moodul AkvaGIS

Horizon 2020
European Union Funding
for Research & Innovation

Stiffi teemakaart

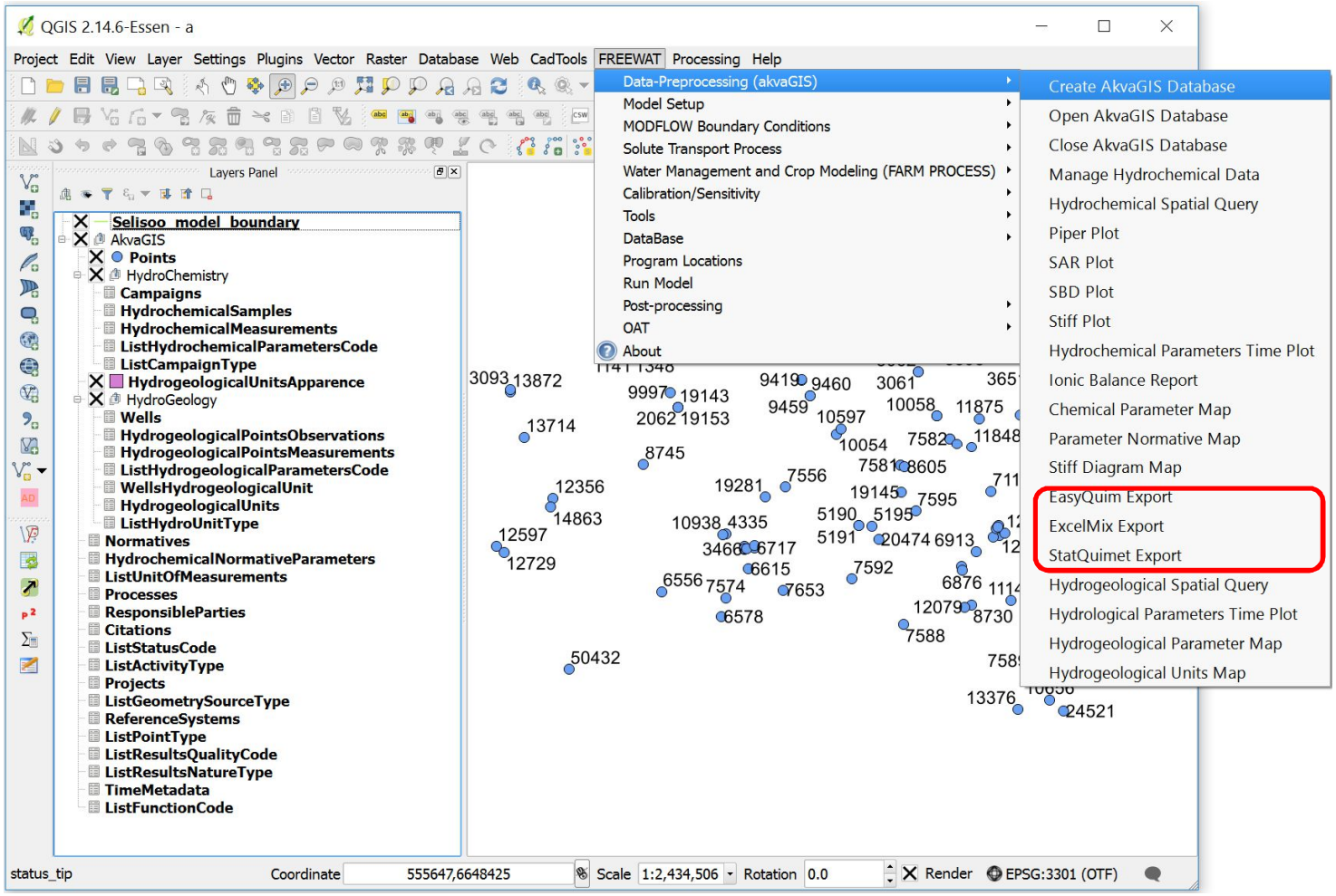


TARTU ÜLIKOOL
geoloogia osakond
1632

Moodul AkvaGIS

Horizon 2020
European Union Funding
for Research & Innovation

Andmete eksportimise vahendid



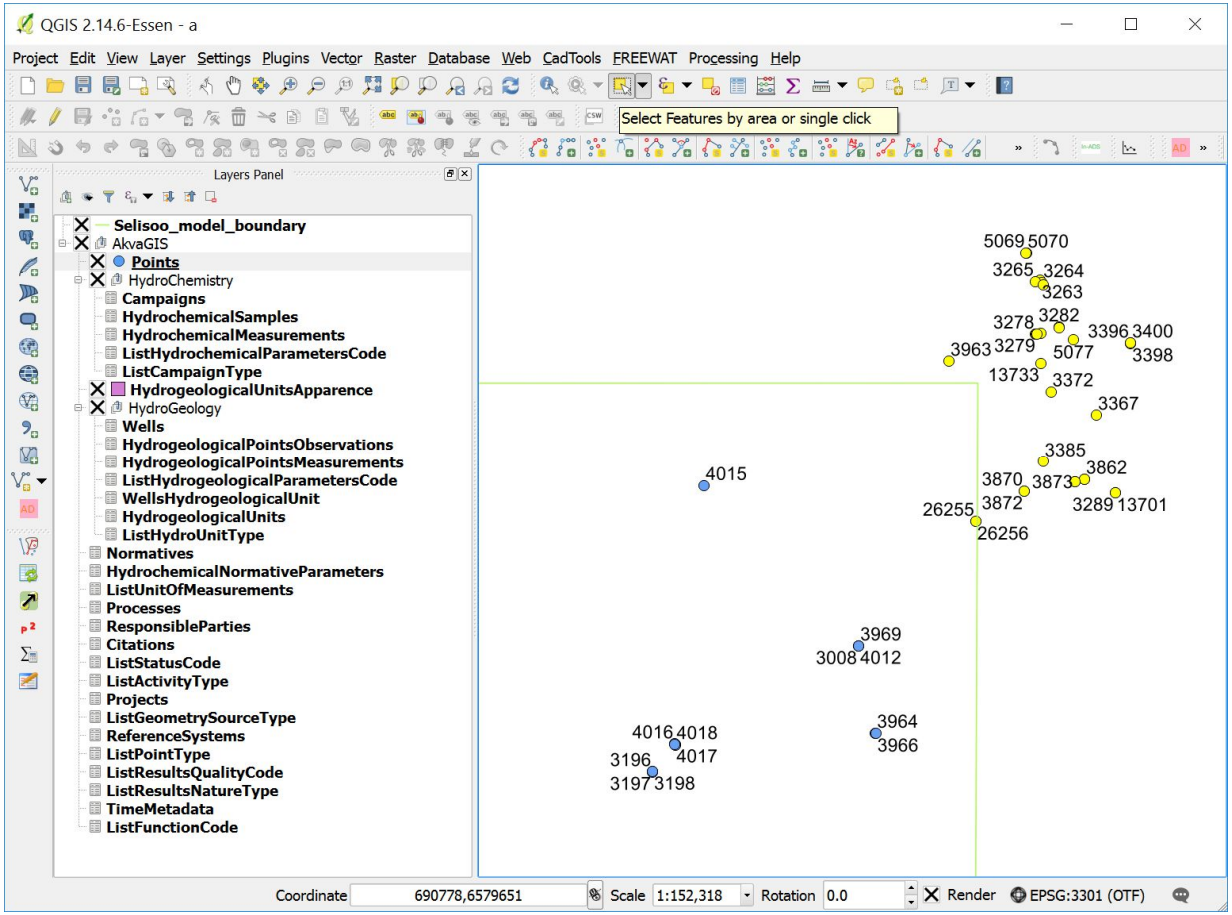
TARTU ÜLIKOOL
geoloogia osakond
1632

Moodul AkvaGIS

Horizon 2020
European Union Funding
for Research & Innovation

Hüdrogeoloogia ruumipäringu koostamine

Esmalt tuleb kaardilt selekteerida soovitud kaevud (Points)

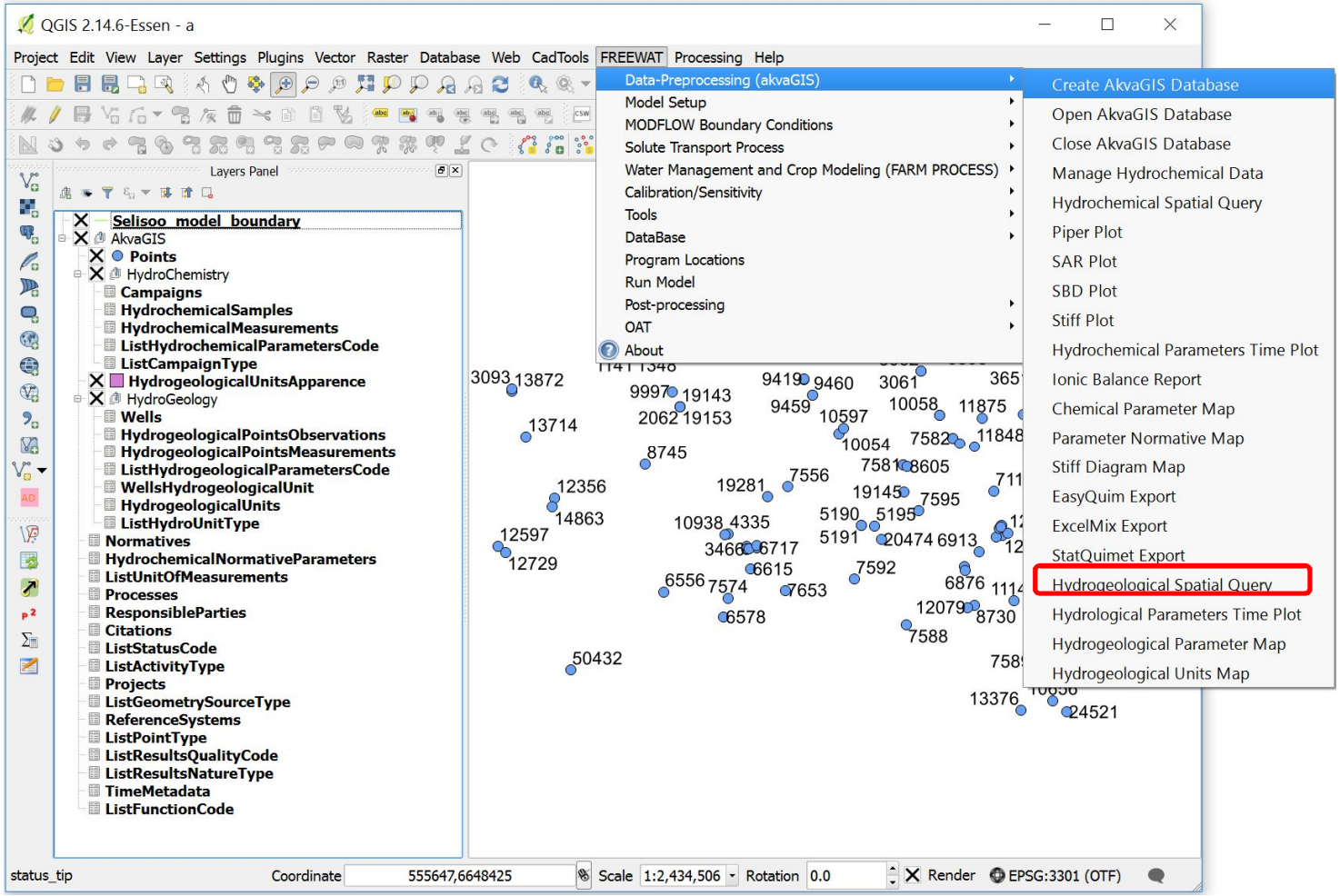


TARTU ÜLIKOOL
geoloogia osakond
1632

Moodul AkvaGIS

Horizon 2020
European Union Funding
for Research & Innovation

Hüdrogeoloogia ruumipäringu koostamine

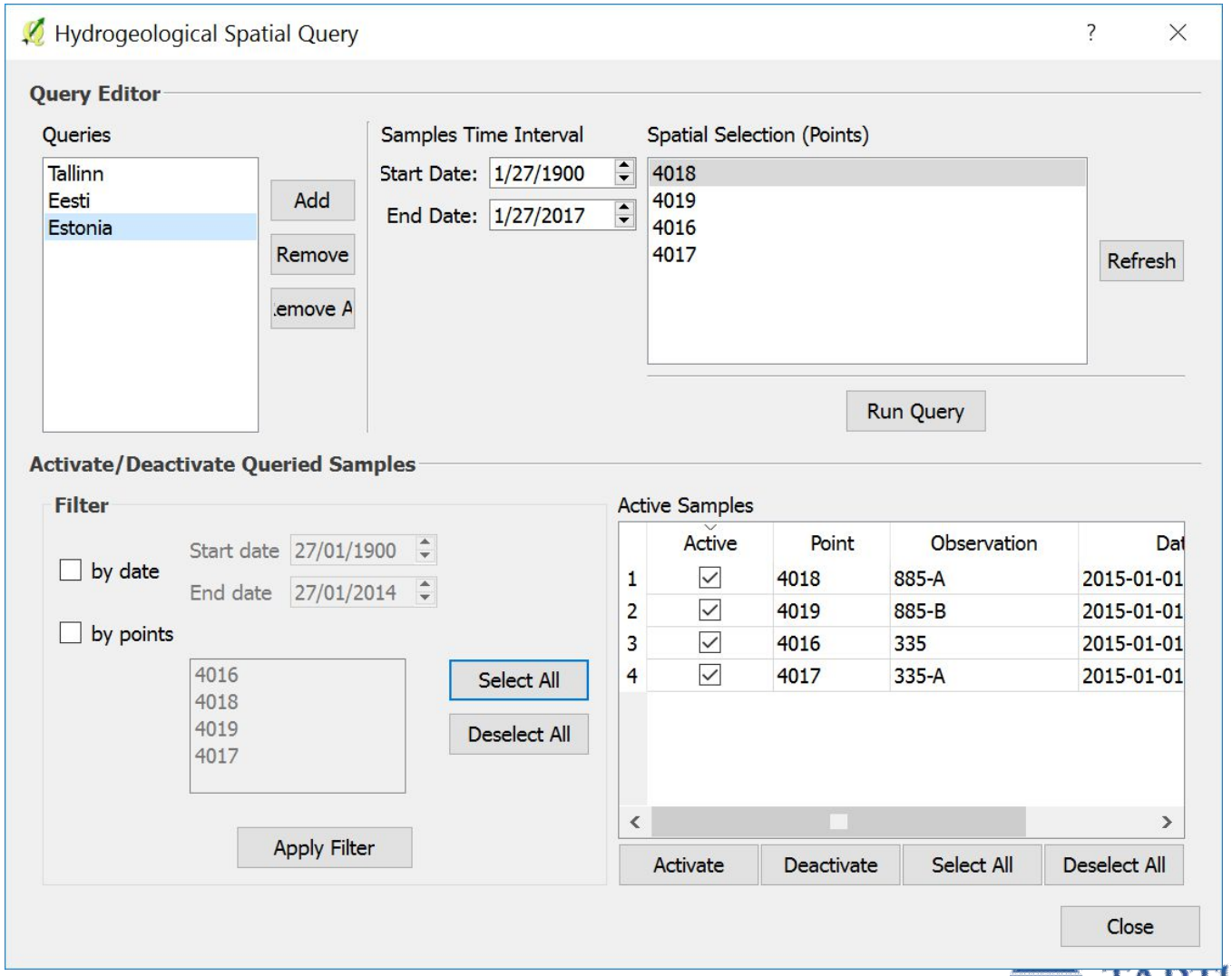


TARTU ÜLIKOOL
geoloogia osakond
1632

Moodul AkvaGIS

Horizon 2020
European Union Funding
for Research & Innovation

Hüdrogeoloogiline ruumipäring

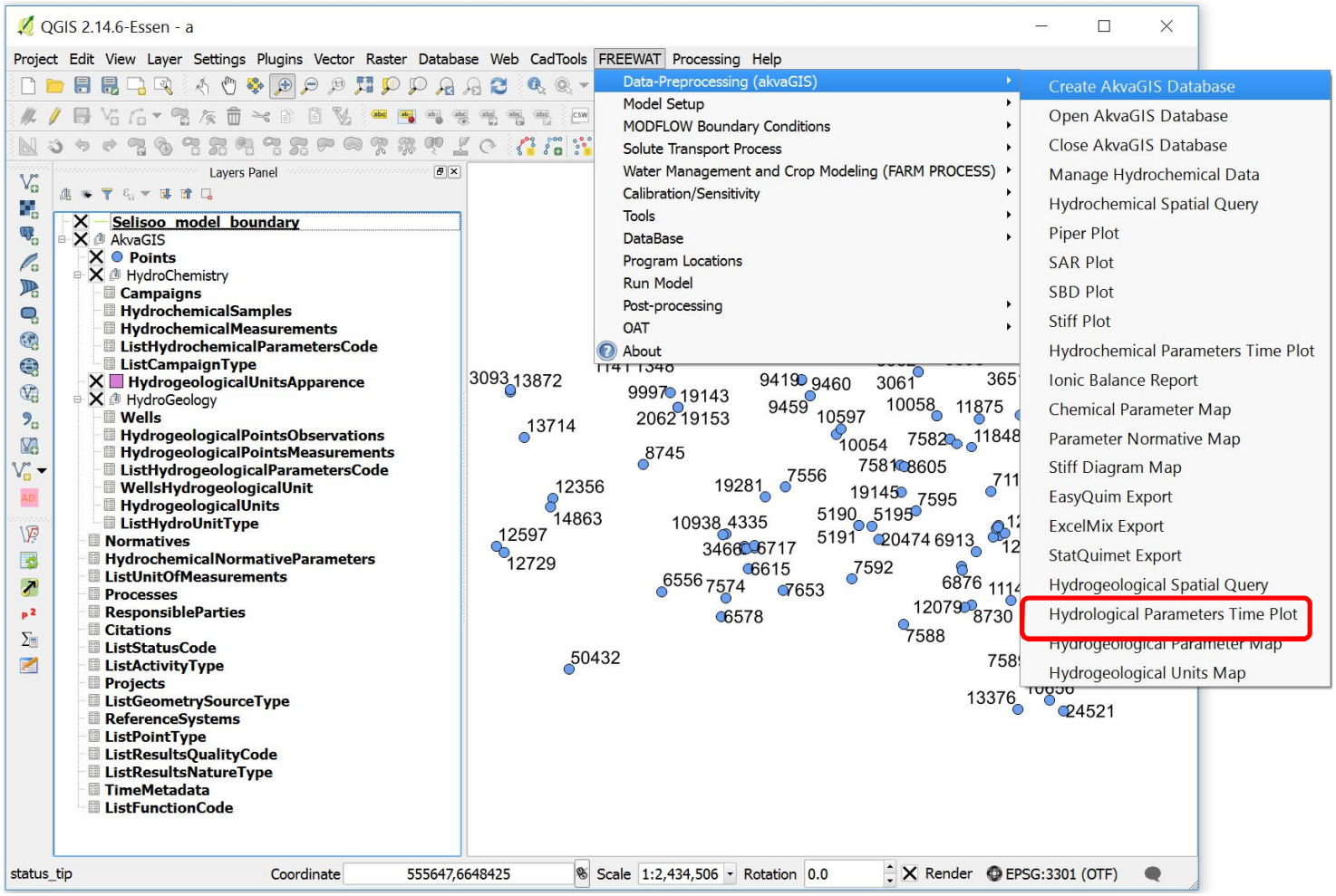


TARTU ÜLIKOOL
geoloogia osakond
1632

Moodul AkvaGIS

Horizon 2020
European Union Funding
for Research & Innovation

Aegsõltuvate veetasemete graafikute loomine

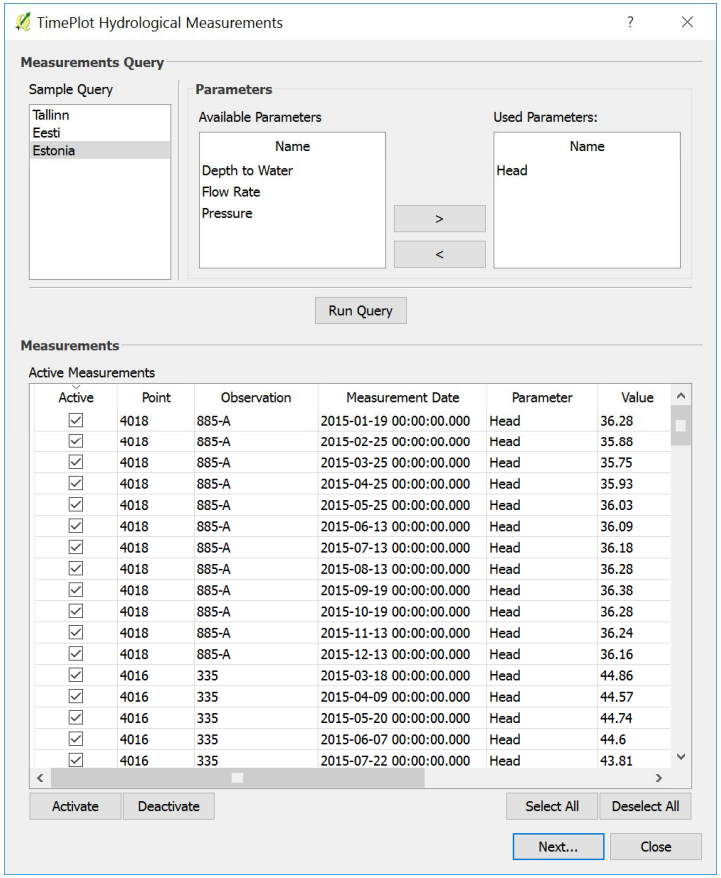


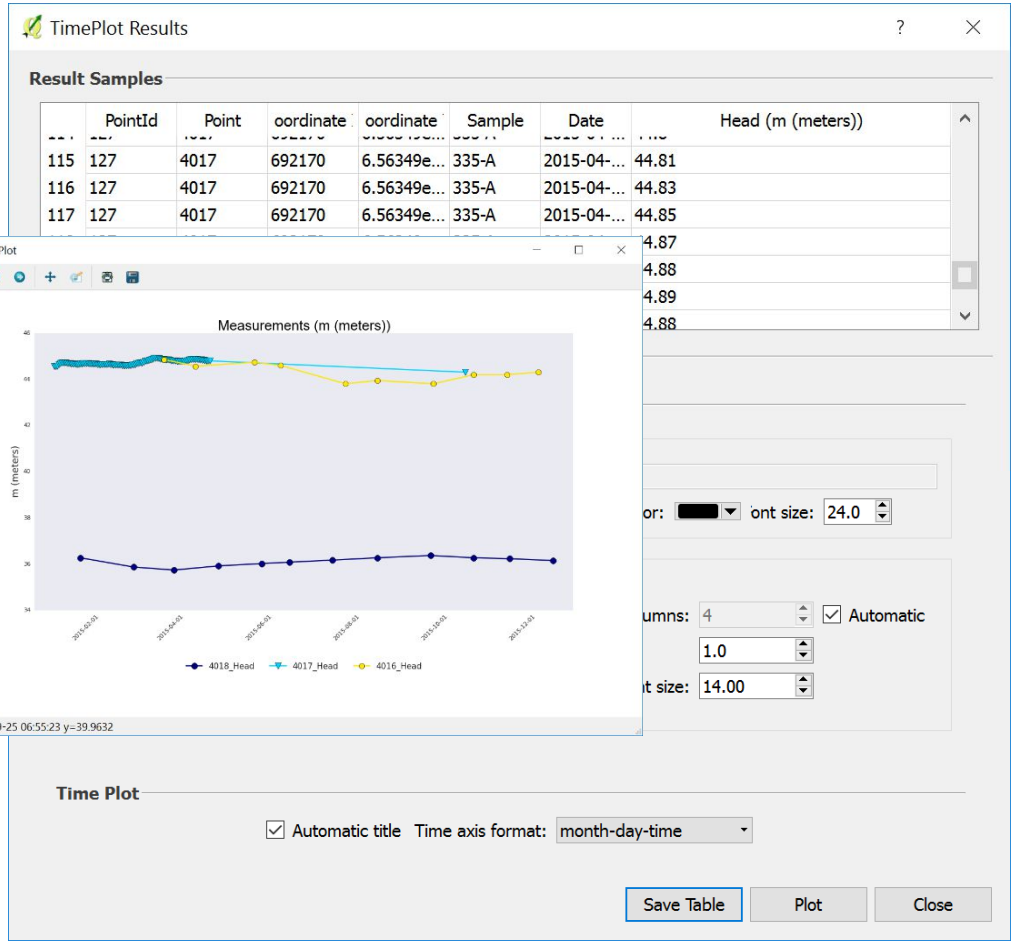
TARTU ÜLIKOOL
geoloogia osakond
1632

Moodul AkvaGIS

Horizon 2020
European Union Funding
for Research & Innovation

Aegsõltuvad graafikud



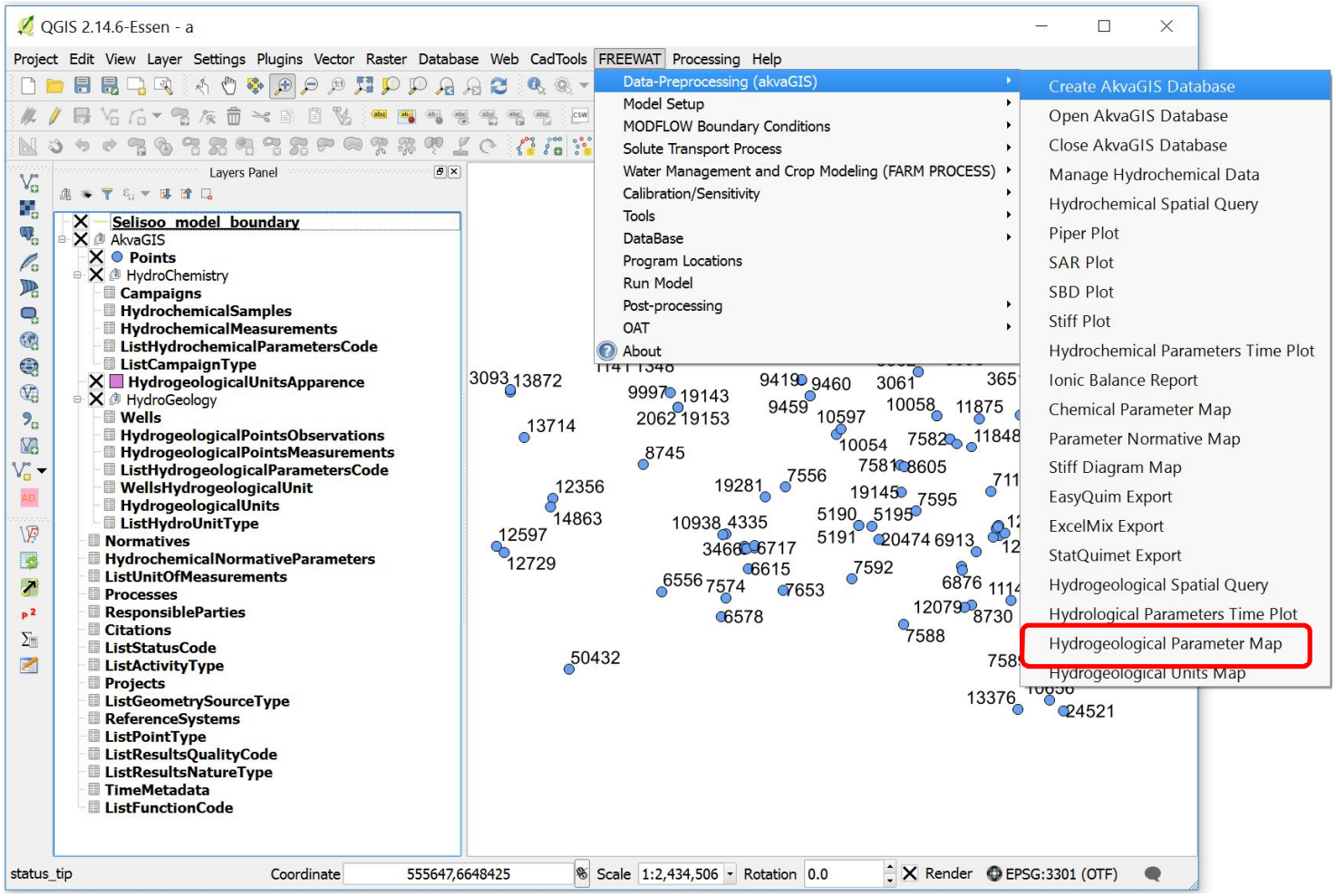


TARTU ÜLIKOOL
geoloogia osakond
1632

Moodul AkvaGIS

Horizon 2020
European Union Funding
for Research & Innovation

Veetasemetega seotud teemakaardid

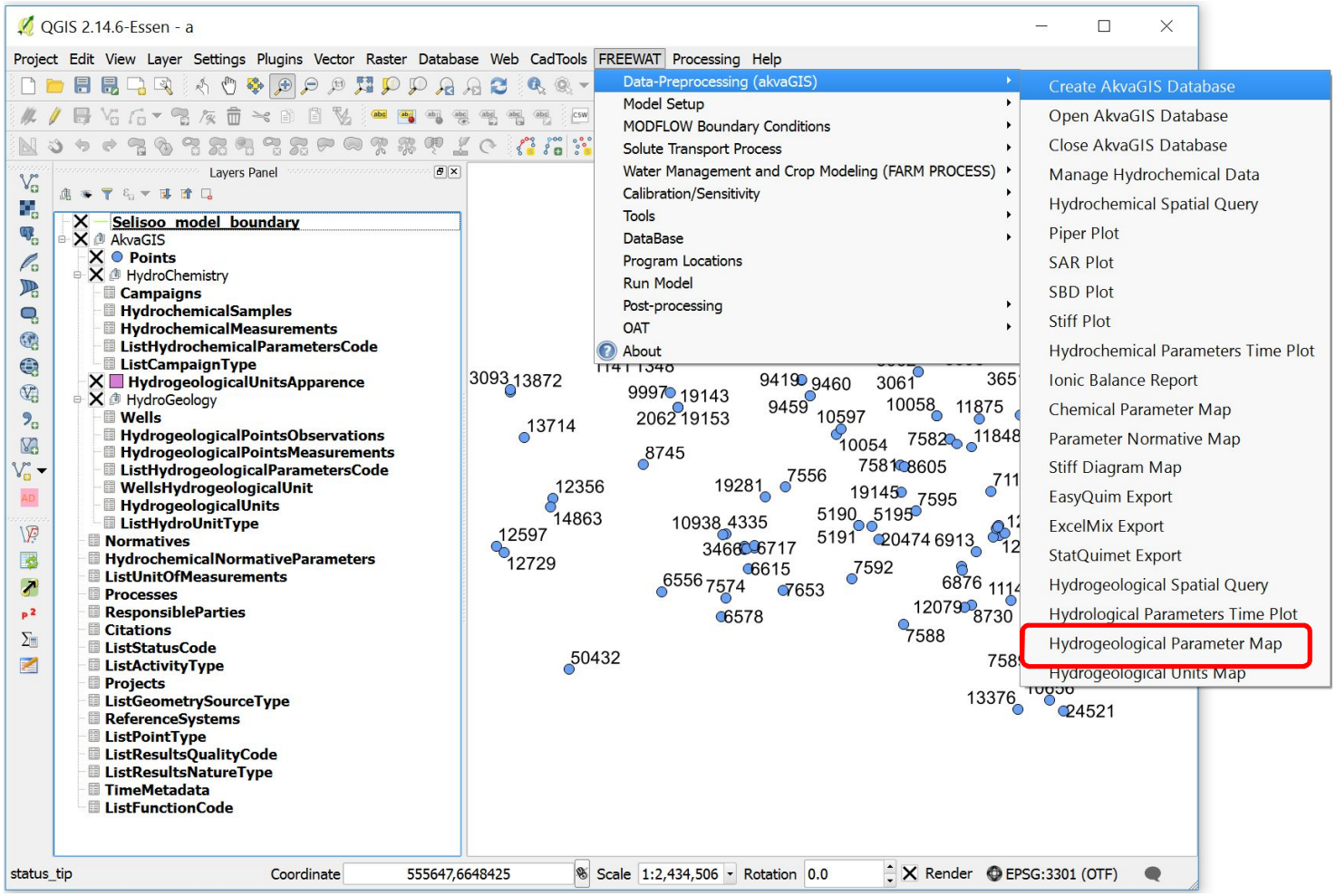


TARTU ÜLIKOOL
geoloogia osakond
1632

Moodul AkvaGIS

Horizon 2020
European Union Funding
for Research & Innovation

Veetasemetega seotud teemakaardid



TARTU ÜLIKOOL
geoloogia osakond
1632

FREEWAT

Horizon 2020
European Union Funding
for Research & Innovation

Tänan kuulamast!

Kontakt:

Maile Polikarpus	maile.polikarpus@ut.ee
Argo Jõeleht	argo.joeleht@ut.ee
Andres Marandi	andres.marandi@ut.ee

TARTU ÜLIKOOL
1632
geoloogia osakond