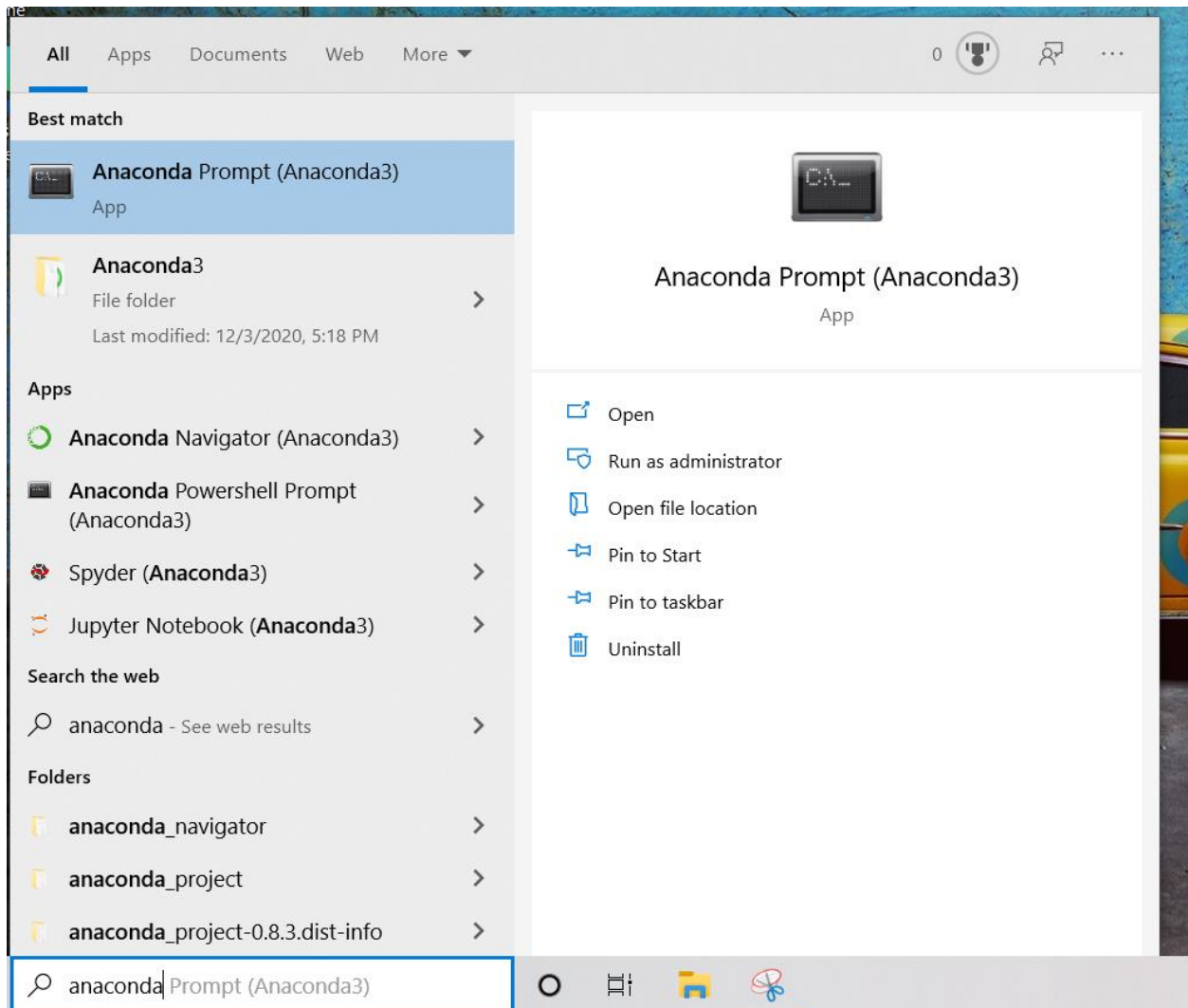
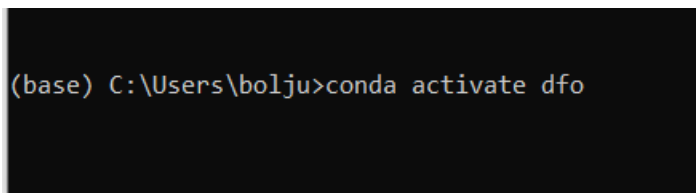


Starting app server

1. Search and start Anaconda Prompt



2. Activate environment: in prompt type "**conda activate dfo**"



3. Go to folder where app files are located. Type "**cd your/folder**"

```
(dfo) C:\Users\bolju>cd C:\Users\bolju\Desktop\Projects\gecko
```

4. Type “*python run.py*”

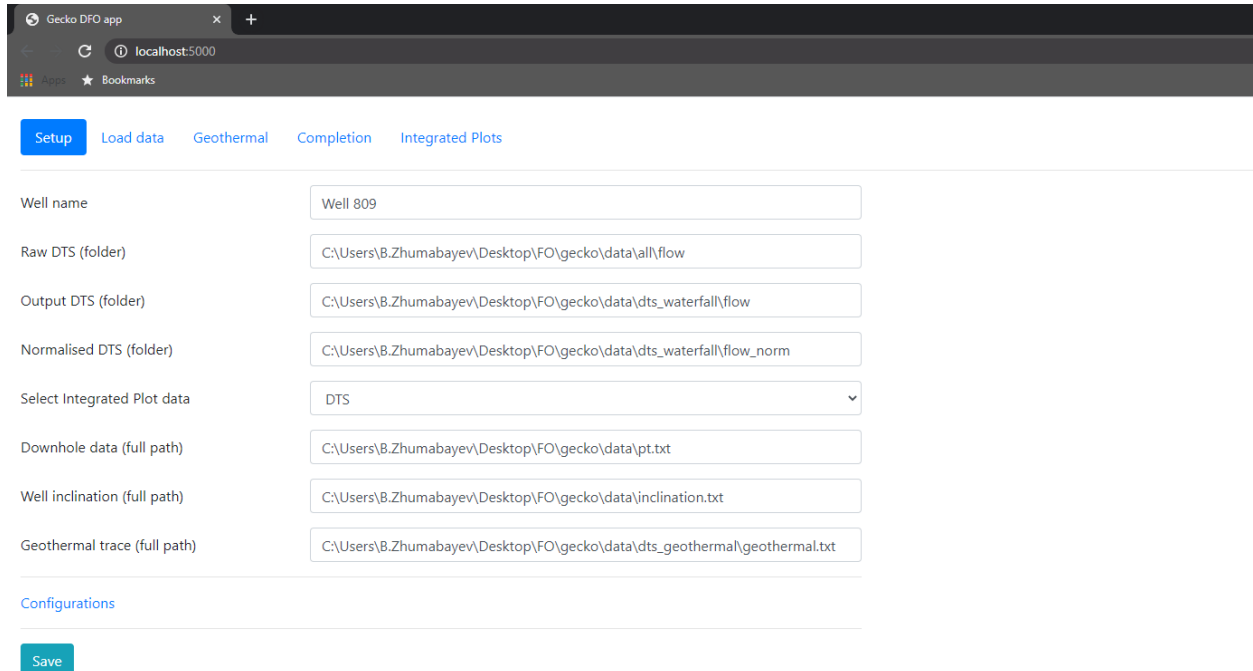
```
(dfo) C:\Users\bolju\Desktop\Projects\gecko>python run.py
```

The result should look like this

```
(dfo2) C:\Users\B.Zhumabayev\Desktop\F0\gecko>python run.py
* Restarting with stat
* Debugger is active!
* Debugger PIN: 315-335-365
(14192) wsgi starting up on http://127.0.0.1:5000
```

Your server is on!

You can now go to <http://localhost:5000>



The screenshot shows a web browser window with the title "Gecko DFO app" and the address bar displaying "localhost:5000". The interface has a navigation bar with tabs: "Setup" (active), "Load data", "Geothermal", "Completion", and "Integrated Plots". Below the tabs, there is a form with several input fields and a dropdown menu. The fields are labeled as follows:

- Well name: Well 809
- Raw DTS (folder): C:\Users\B.Zhumabayev\Desktop\F0\gecko\data\all\flow
- Output DTS (folder): C:\Users\B.Zhumabayev\Desktop\F0\gecko\data\dts_waterfall\flow
- Normalised DTS (folder): C:\Users\B.Zhumabayev\Desktop\F0\gecko\data\dts_waterfall\flow_norm
- Select Integrated Plot data: DTS (dropdown menu)
- Downhole data (full path): C:\Users\B.Zhumabayev\Desktop\F0\gecko\data\pt.txt
- Well inclination (full path): C:\Users\B.Zhumabayev\Desktop\F0\gecko\data\inclination.txt
- Geothermal trace (full path): C:\Users\B.Zhumabayev\Desktop\F0\gecko\data\dts_geothermal\geothermal.txt

Below the form, there is a link labeled "Configurations" and a "Save" button.

Step 1

Configure setup

1. Define folder locations and file paths to existing data
2. Configure units and format according to the data available.

Gecko DFO app

localhost:5000

Apps

Bookmarks

Setup

Load data

Geothermal

Completion

Integrated Plots

Well name

Well 809

Raw DTS (folder)

C:\Users\B.Zhumabayev\Desktop\FO\gecko\data\all\flow

Output DTS (folder)

C:\Users\B.Zhumabayev\Desktop\FO\gecko\data\dts_waterfall\flow

Normalised DTS (folder)

C:\Users\B.Zhumabayev\Desktop\FO\gecko\data\dts_waterfall\flow_norm

Select Integrated Plot data

DTS

Downhole data (full path)

C:\Users\B.Zhumabayev\Desktop\FO\gecko\data\pt.txt

Well inclination (full path)

C:\Users\B.Zhumabayev\Desktop\FO\gecko\data\inclination.txt

Geothermal trace (full path)

C:\Users\B.Zhumabayev\Desktop\FO\gecko\data\dts_geothermal\geothermal.txt

Configurations

Timestamp format

%Y-%m-%dT%H_%M_%S

DTS timestamp shift, hrs

-21

Temperature unit

C

Pressure unit

Bar

Depth unit

m

ID unit

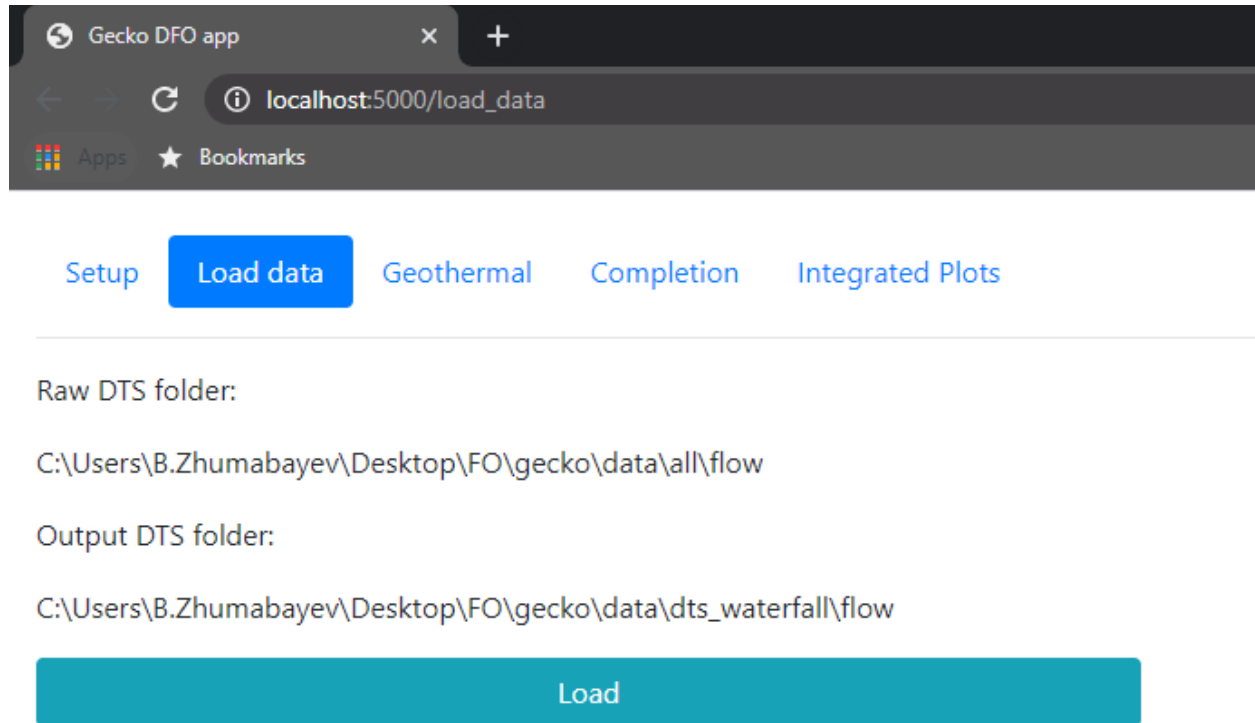
in

Save

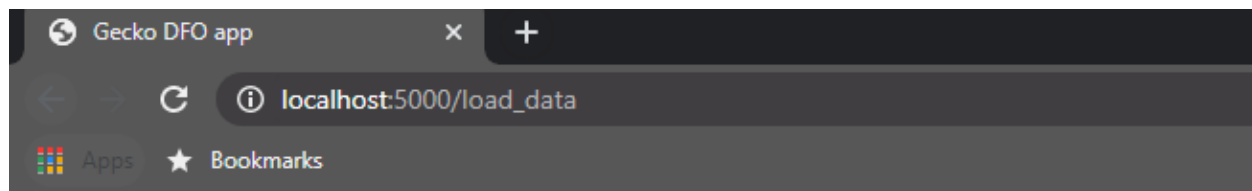
Step 2

Load .las DTS files. Raw, output and normalized DTS data folder is specified in Setup.

Check if folder are correct on the load page



Press the button



Raw DTS folder:

C:\Users\B.Zhumabayev\Desktop\FO\gecko\data\all\flow

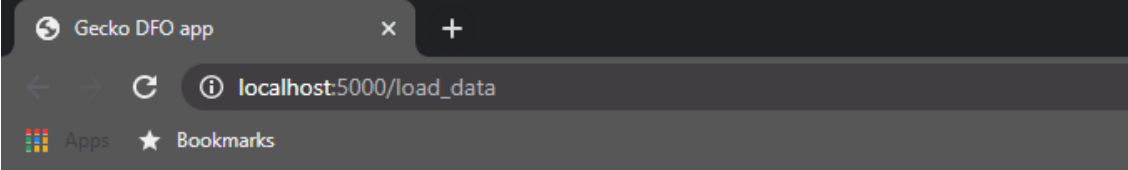
Output DTS folder:

C:\Users\B.Zhumabayev\Desktop\FO\gecko\data\dts_waterfall\flow

Load



As a result you will get some statistics about the data



Setup **Load data** Geothermal Completion Integrated Plots

Raw DTS folder:

C:\Users\B.Zhumabayev\Desktop\FO\gecko\data\all\flow

Output DTS folder:

C:\Users\B.Zhumabayev\Desktop\FO\gecko\data\dts_waterfall\flow

Load

Timestamp intervals histogram

Bins, minutes	Frequency
12	521
84.085	1
228.255	1

Timestamp min max

Timestamp min: 2017-11-29T20_42_17

Timestamp max: 2017-12-04T11_05_51

Depths intervals

Depth min, m: 130.099

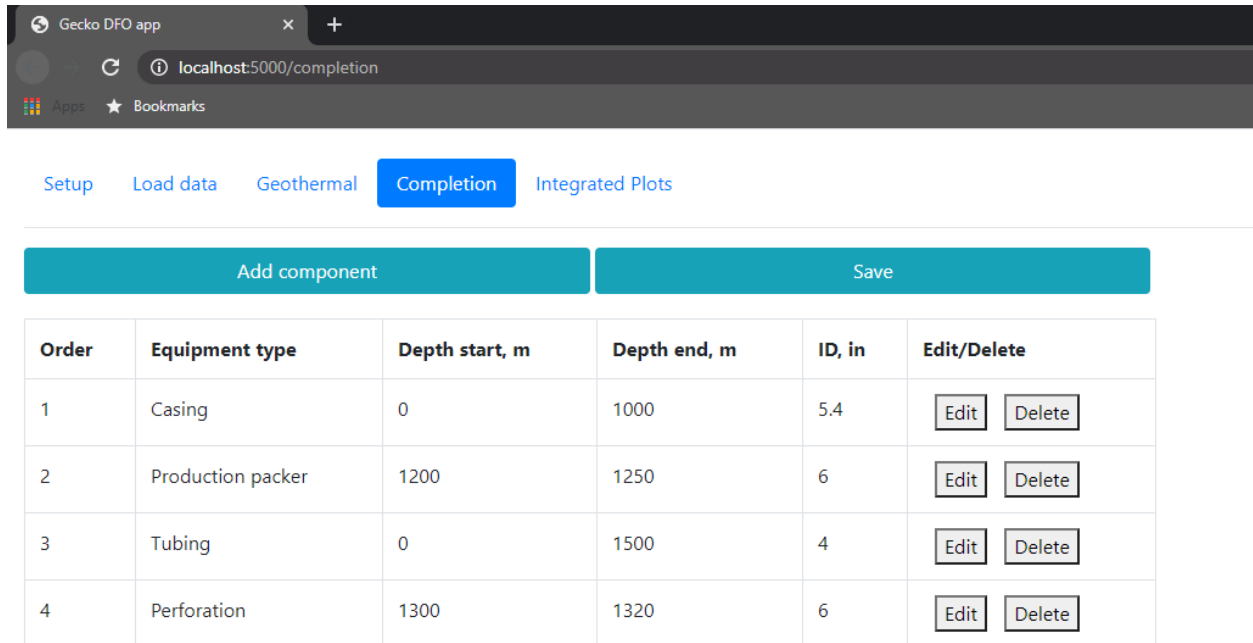
Depth max, m: 1956.299

Depth interval, m: 0.200000000000001705

Trace depth count: 9132

Step 3

Build completion using this page



The screenshot shows a web browser window with the address bar displaying 'localhost:5000/completion'. The browser's address bar also shows 'Gecko DFO app' and a '+' icon. Below the address bar, there are links for 'Apps' and 'Bookmarks'. The main content area has a navigation bar with four tabs: 'Setup', 'Load data', 'Geothermal', and 'Completion' (which is highlighted in blue). Below the navigation bar, there are two teal buttons: 'Add component' and 'Save'. Below these buttons is a table with the following data:

Order	Equipment type	Depth start, m	Depth end, m	ID, in	Edit/Delete
1	Casing	0	1000	5.4	<input type="button" value="Edit"/> <input type="button" value="Delete"/>
2	Production packer	1200	1250	6	<input type="button" value="Edit"/> <input type="button" value="Delete"/>
3	Tubing	0	1500	4	<input type="button" value="Edit"/> <input type="button" value="Delete"/>
4	Perforation	1300	1320	6	<input type="button" value="Edit"/> <input type="button" value="Delete"/>

You can add/edit/delete completion elements as required

The image shows a modal dialog box titled "Completion component" with a close button (X) in the top right corner. The dialog contains the following fields:

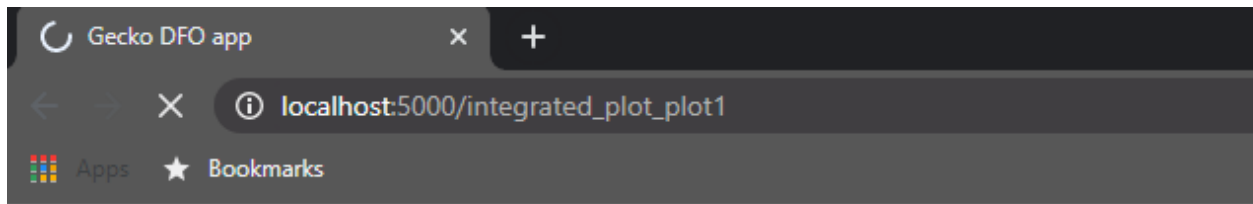
- Order:** A text input field containing the number "5".
- Component type:** A dropdown menu with a downward arrow icon.
- Depth start, m:** An empty text input field.
- Depth end, m:** An empty text input field.
- ID, in:** An empty text input field.

At the bottom right of the dialog, there are two buttons: "Close" (grey) and "Save" (teal).

Once done don't forget to save by clicking on save button.

Step 4

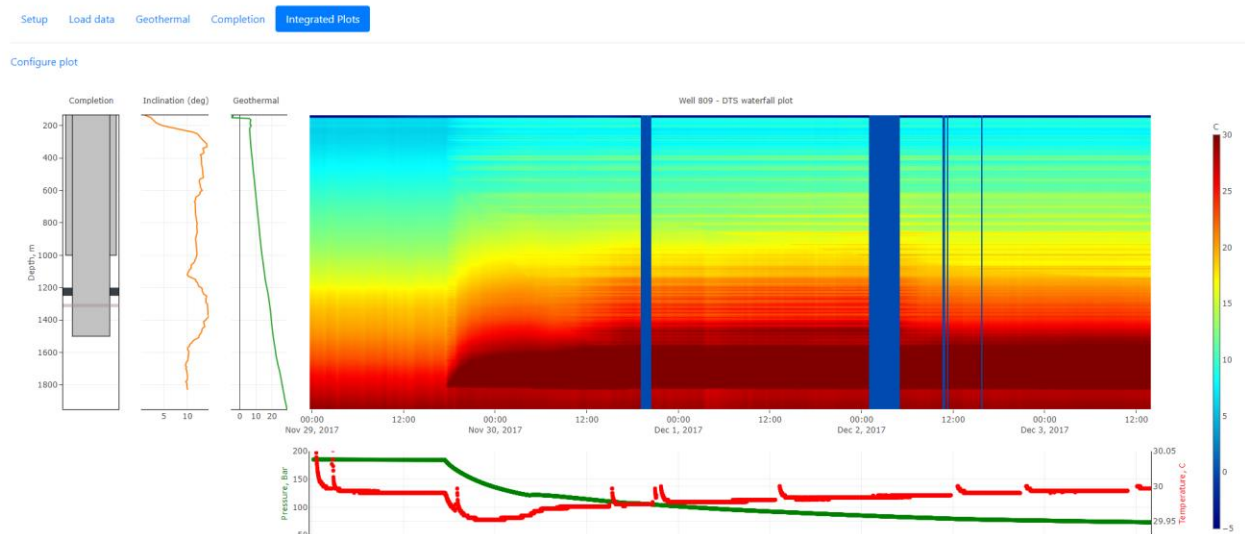
Go to Integrated Plot page to see what the data looks like



Loading



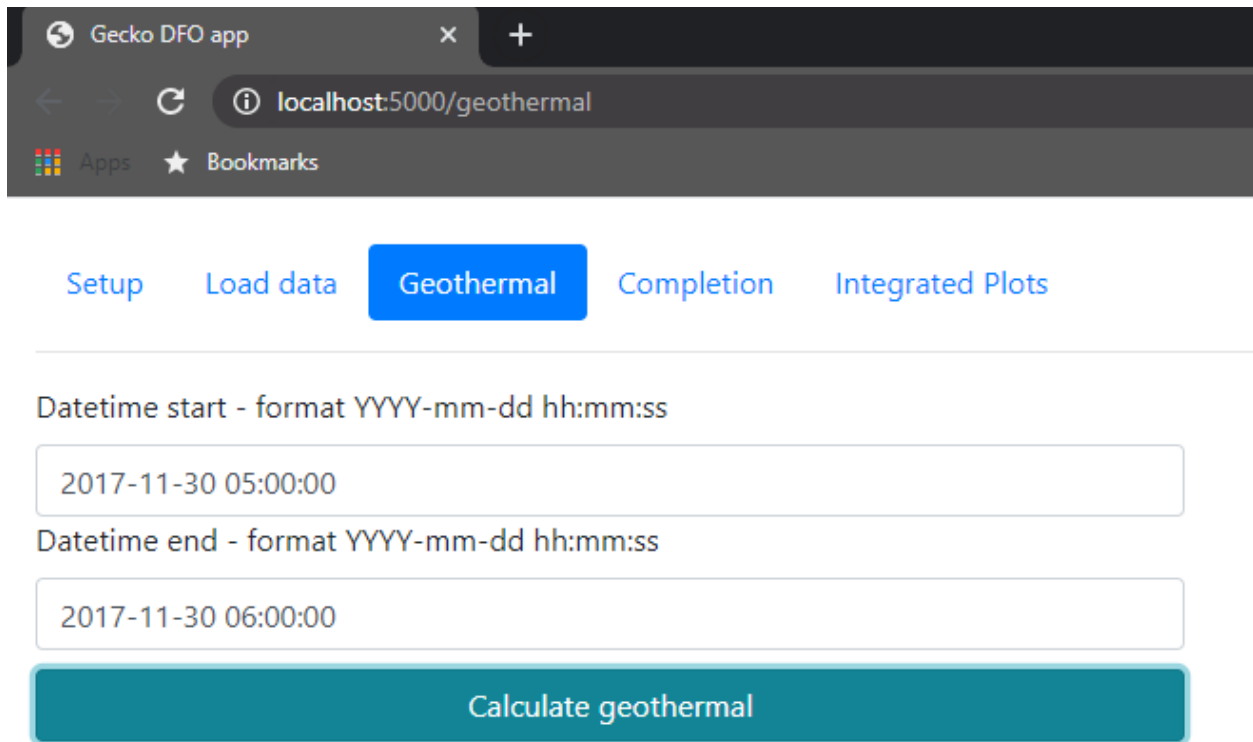
Once loaded will look like this



Step 5

Calculate geothermal trace to then apply it to DTS data

Choose period to average traces. Note that this is simple averaging.



The screenshot shows a web browser window with the title "Gecko DFO app" and the address bar displaying "localhost:5000/geothermal". Below the browser window is a navigation bar with five tabs: "Setup", "Load data", "Geothermal" (which is highlighted in blue), "Completion", and "Integrated Plots". Below the tabs, there are two text input fields. The first is labeled "Datetime start - format YYYY-mm-dd hh:mm:ss" and contains the value "2017-11-30 05:00:00". The second is labeled "Datetime end - format YYYY-mm-dd hh:mm:ss" and contains the value "2017-11-30 06:00:00". Below these fields is a large teal button with the text "Calculate geothermal".

Once it's calculated plot on the right will appear to show the final trace.

Setup Load data **Geothermal** Completion Integrated Plots

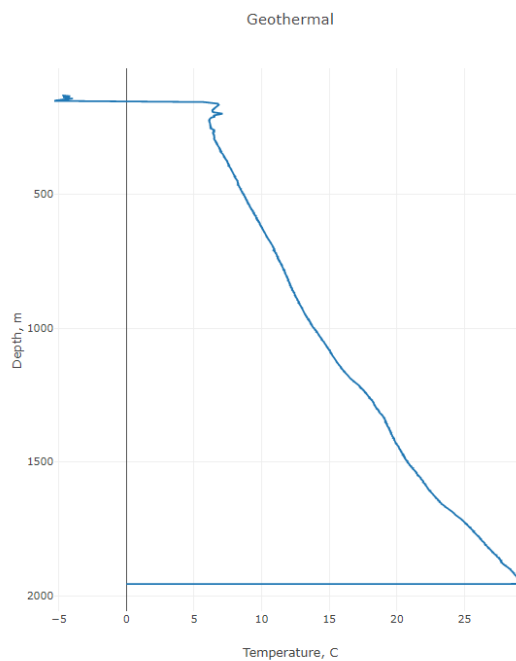
Datetime start - format YYYY-mm-dd hh:mm:ss

2017-11-30 05:00:00

Datetime end - format YYYY-mm-dd hh:mm:ss

2017-11-30 06:00:00

Calculate geothermal



Save geothermal

Geothermal file to save (edit in Setup):

C:\Users\B.Zhumabayev\Desktop\FO\gecko\data\dts_geothermal\geothermal.txt

In case you are confident in geothermal, save it

After saving, a button will become visible that will allow to calculate normalized DTS, which is simple DTS-geothermal.

[Setup](#) [Load data](#) **Geothermal** [Completion](#) [Integrated Plots](#)

Datetime start - format YYYY-mm-dd hh:mm:ss

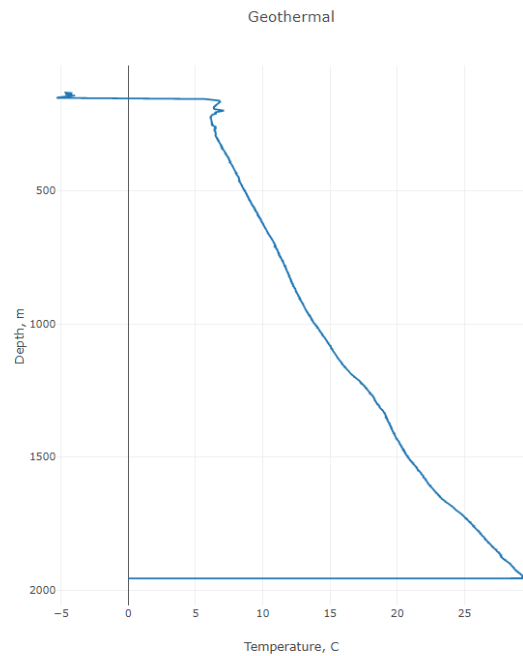
2017-11-30 05:00:00

Datetime end - format YYYY-mm-dd hh:mm:ss

2017-11-30 06:00:00

Calculate geothermal

Calculate DTS-geothermal (norm)



Save geothermal

Geothermal file to save (edit in Setup):

C:\Users\B.Zhumabayev\Desktop\FO\gecko\data\dts_geothermal\geothermal.txt

Once you click on calculate DTS-geothermal button, it calculated normalized DTS and saves it to the folder you specified in Setup page.

Step 6

Go back to Setup

You can now select between DTS and normalized DTS for integrated plotting

Gecko DFO app

localhost:5000

Apps

Bookmarks

Setup

Load data

Geothermal

Completion

Integrated Plots

Well name

Well 809

Raw DTS (folder)

C:\Users\B.Zhumabayev\Desktop\FO\gecko\data\all\flow

Output DTS (folder)

C:\Users\B.Zhumabayev\Desktop\FO\gecko\data\dts_waterfall\flow

Normalised DTS (folder)

C:\Users\B.Zhumabayev\Desktop\FO\gecko\data\dts_waterfall\flow_norm

Select Integrated Plot data

DTS

DTS

Normalised DTS

Downhole data (full path)

Well inclination (full path)

C:\Users\B.Zhumabayev\Desktop\FO\gecko\data\inclination.txt

Geothermal trace (full path)

C:\Users\B.Zhumabayev\Desktop\FO\gecko\data\dts_geothermal\geothermal.txt

Configurations

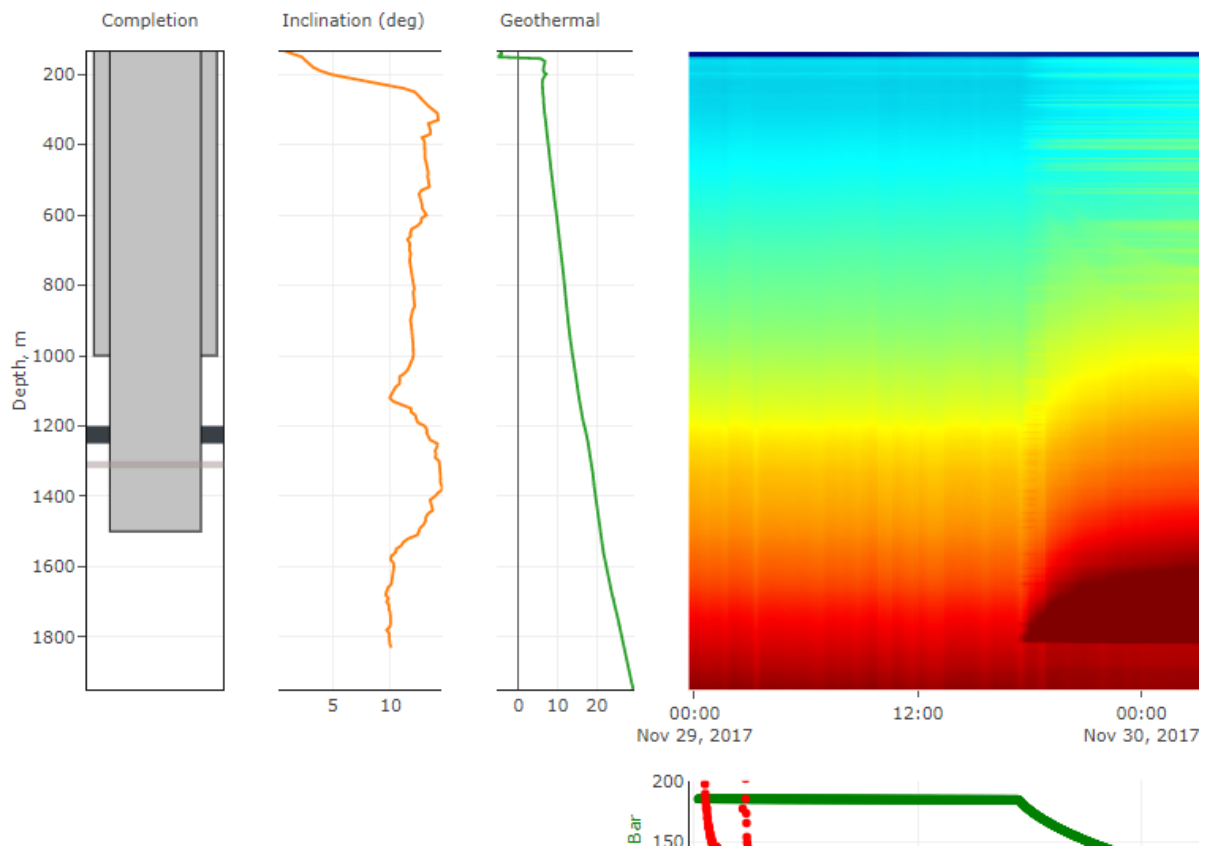
Save

Step 7

Go to Integrated plot. On the left top corner there is a button to configure plot settings to improve visualization

Setup Load data Geothermal Completion Integrated Plots

Configure plot



Configure plots

Waterfall plot

Temperature min, C

-5

Temperature max, C

30

Colormap

Jet

Pressure and Temperature plot

Temperature min, C

29.93

Temperature max, C

30.05

Pressure min, Bar

50

Pressure max, Bar

200

Save

There are multiple options for Colormaps that can be helpful in testing visualization of certain events taking place

Configure plots



Waterfall plot

Temperature min, C

-5

Temperature max, C

30

Colormap

Jet



Jet

YlOrRd

YlGnBu

RdBu

Portland

Hot

Greys

Electric

30.05

Pressure min, Bar

50

Pressure max, Bar

200

Save