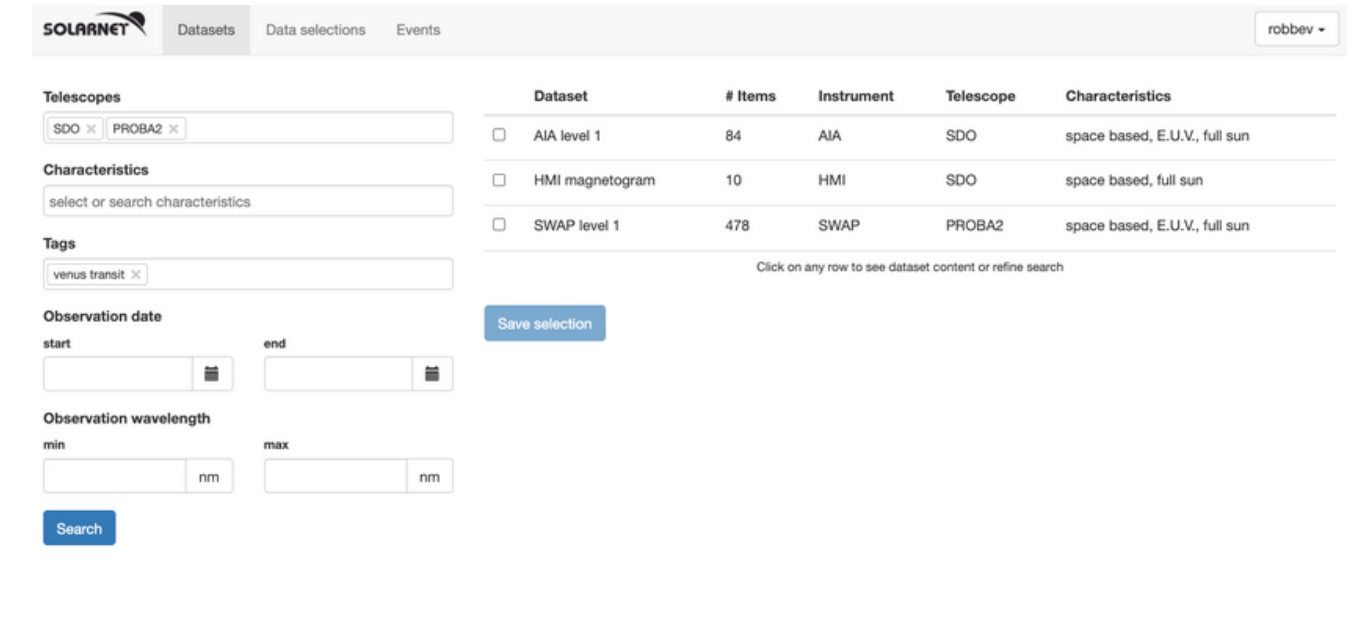


The SOLARNET project and the Solar Virtual Observatory (SVO)

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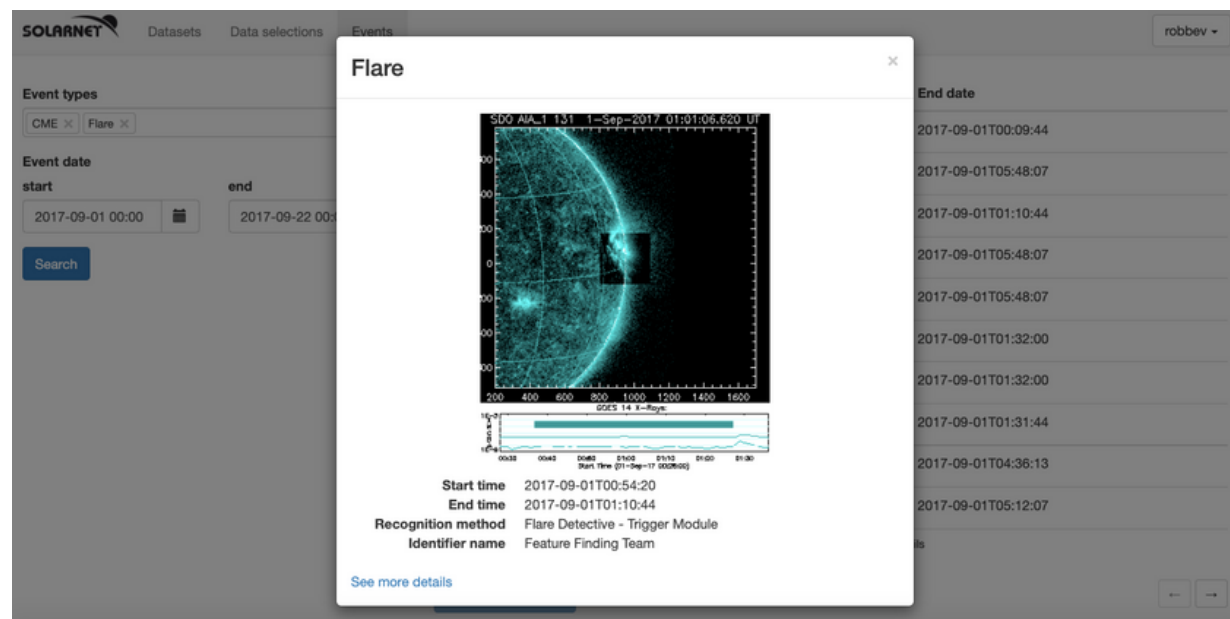
Developed in the framework of the H2020 SOLARNET project, the Solar Virtual Observatory (SVO) aims at making solar data more findable and accessible to the solar physics community. The SVO allows searching across multiple datasets as well as across the Heliophysics Event Database (HEK) and lets you search for data that overlaps with events from the HEK. It is conceived so that other event databases may also be linked to the SVO, such as for example for the ROB Event database that is soon to be publicly released. These capabilities will help researchers in discovering and accessing solar datasets from synoptic observations as well as solar data taken during short observation campaigns.

At the heart of the SVO lies a database populated with meta-data from datasets taken by space- and ground-based telescopes. It is designed to be easily interoperable with external tools and is accessible through a web interface as well as python and IDL clients

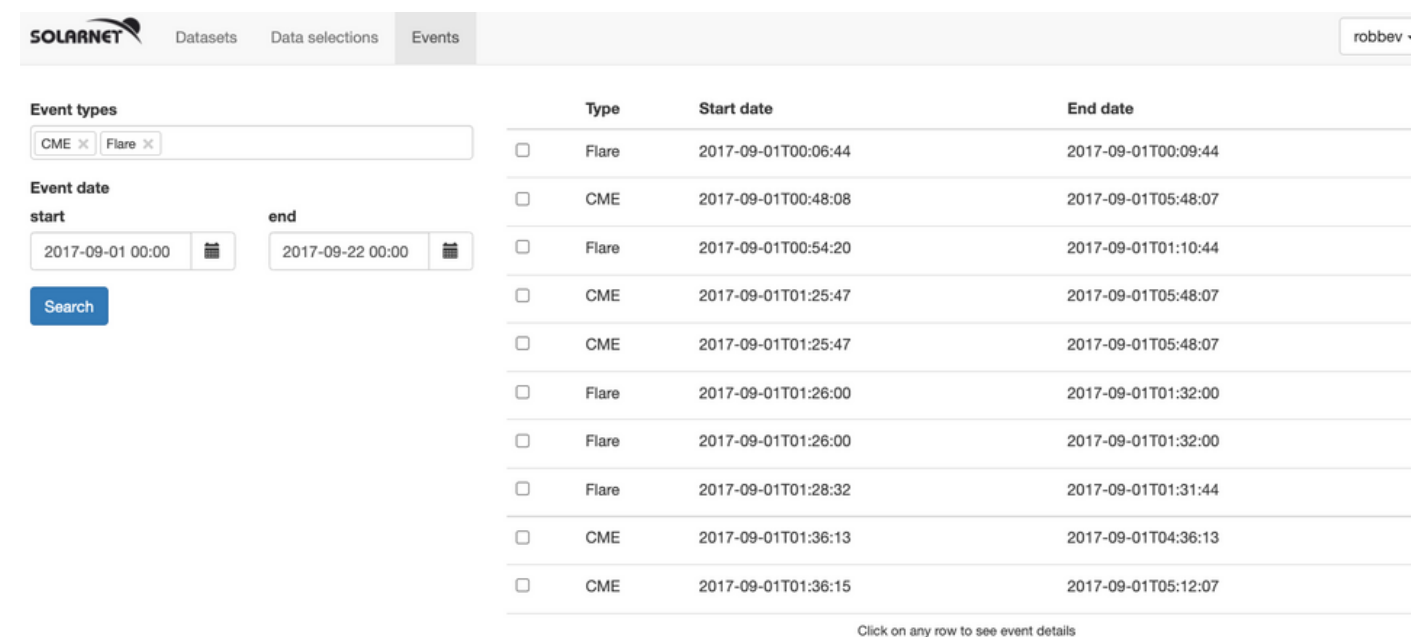


The screenshot shows the SOLARNET web interface with search filters on the left and a table of datasets on the right. The filters include Telescopes (SDO, PROBA2), Characteristics (select or search characteristics), Tags (venus transit), Observation date (start and end), and Observation wavelength (min and max). The table has columns for Dataset, # Items, Instrument, Telescope, and Characteristics.

Dataset	# Items	Instrument	Telescope	Characteristics
<input type="checkbox"/> AIA level 1	84	AIA	SDO	space based, E.U.V., full sun
<input type="checkbox"/> HMI magnetogram	10	HMI	SDO	space based, full sun
<input type="checkbox"/> SWAP level 1	478	SWAP	PROBA2	space based, E.U.V., full sun



The screenshot shows a flare event details window. It includes a plot of the flare intensity over time, with a peak around 2017-09-01T01:10:44. The plot shows a sharp increase in intensity followed by a gradual decay. Below the plot, the event details are listed: Start time: 2017-09-01T00:54:20, End time: 2017-09-01T01:10:44, Recognition method: Flare Detective - Trigger Module, Identifier name: Feature Finding Team.



The screenshot shows a list of events in the SOLARNET web interface. The list has columns for Type, Start date, and End date. The events are listed as follows:

Type	Start date	End date
<input type="checkbox"/> Flare	2017-09-01T00:06:44	2017-09-01T00:09:44
<input type="checkbox"/> CME	2017-09-01T00:48:08	2017-09-01T05:48:07
<input type="checkbox"/> Flare	2017-09-01T00:54:20	2017-09-01T01:10:44
<input type="checkbox"/> CME	2017-09-01T01:25:47	2017-09-01T05:48:07
<input type="checkbox"/> CME	2017-09-01T01:25:47	2017-09-01T05:48:07
<input type="checkbox"/> Flare	2017-09-01T01:26:00	2017-09-01T01:32:00
<input type="checkbox"/> Flare	2017-09-01T01:26:00	2017-09-01T01:32:00
<input type="checkbox"/> Flare	2017-09-01T01:28:32	2017-09-01T01:31:44
<input type="checkbox"/> CME	2017-09-01T01:36:13	2017-09-01T04:36:13
<input type="checkbox"/> CME	2017-09-01T01:36:15	2017-09-01T05:12:07

```
from __future__ import print_function
from SOLARNET import datasets

# See all available datasets
for dataset in datasets:
    print(dataset)

# Get a specific dataset
aia_level1 = datasets["aia_level1"]

# Filter the record in that dataset for June 2012 the 6th with a wavelength of 171A
filtered_aia_level1 = aia_level1.filter("DATE-OBS", "2012 June 6", WAVELNTH = 171)

# Display the date of observation and the wavelength in that filtered dataset
for record in filtered_aia_level1:
    print(record.meta_data["DATE-OBS"], record.meta_data["WAVELNTH"])

# Download the data from a record
record = filtered_aia_level1[0]
record.download("/tmp")

# Get the data as a BytesIO [1] without saving to disk
data = record.data()

# Open the data as a fits file (see astropy.io.fits [2])
hdus = record.HDUs()
```

<http://solarnet.oma.be/>



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