PyMoonDB: The python interface to the MoonDB lunar sample database

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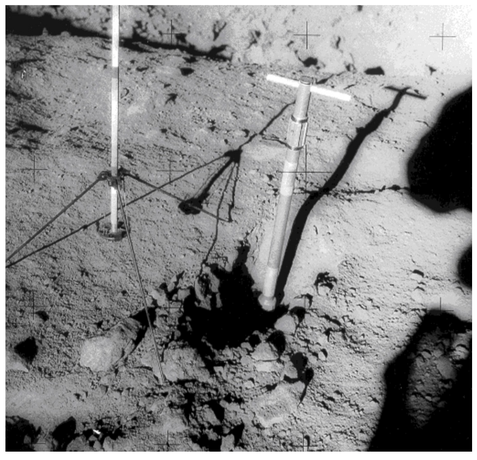
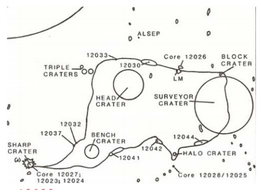
The MoonDB project started in 2015 from a collaboration between the Lamont-Doherty Earth Observatory's Geoinformatics Research Group and NASA's Johnson Space Center (JSC). MoonDB is a data system that restores and synthesizes historical and new geochemical and petrological data of lunar samples collected during missions to the moon. More than 13000 analytical data and metadata are currently stored in a relational database with a schema derived from the Observations Data Model Version 2 (ODM2), and made available through a representational state transfer (REST) interface. Here we present the python interface to MoonDB developed at IAPS-INAF in Italy. This software module will enable access to the DB in the python scripting language. The first public version will be presented together with a demo notebook application. The software will be published as Free Open Source software following the forthcoming OpenAccess guidelines for research products in EU.

https://www.ict.inaf.it/gitlab/alessandro.frigeri/pymoondb

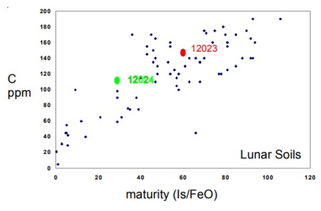
Data Modeling



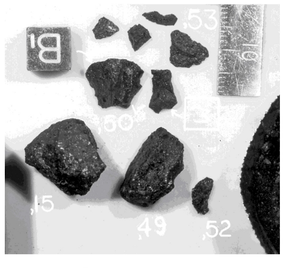
The Specimen (12024)

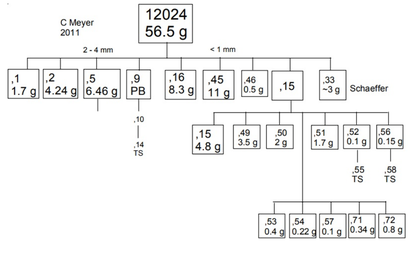


The Landmark



The Analysis





The Specimen's children (12024.XX)

total_specimens_weight.py (in examples/)

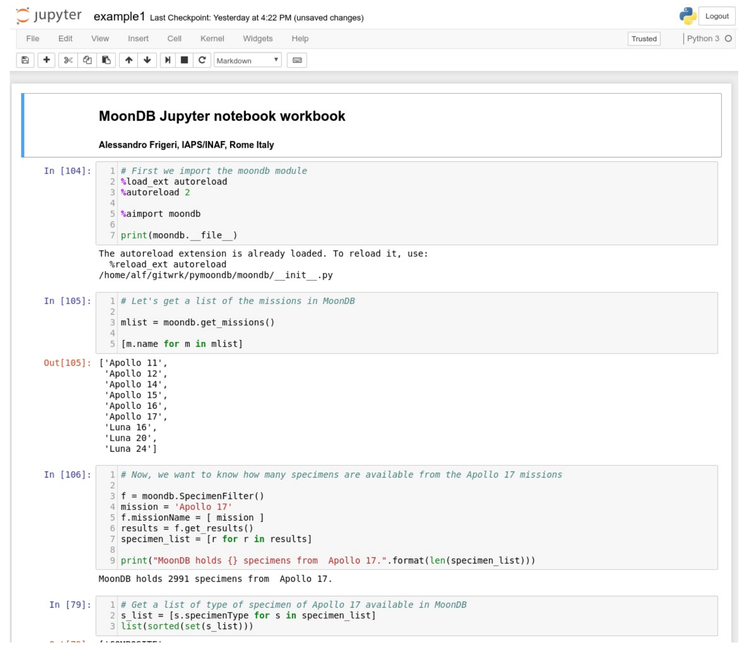
```
MoonDB holds 21.494 kg of specimens from Apollo 11
MoonDB holds 34.352 kg of specimens from Apollo 12
MoonDB holds 42.285 kg of specimens from Apollo 14
MoonDB holds 76.783 kg of specimens from Apollo 15
MoonDB holds 95.300 kg of specimens from Apollo 16
MoonDB holds 109.444 kg of specimens from Apollo 17
MoonDB holds 0.006 kg of specimens from Luna 16
MoonDB holds 0.002 kg of specimens from Luna 20
MoonDB holds 0.000 kg of specimens from Luna 24

MoonDB contains a total of 379.665 kg of specimen from the Moon!
(base) alf@MajorTom:~/gitwrk/pymoondb/examples$
```

specimen.py (in examples/)

```
(base) alf@MajorTom:~/gitwrk/pymoondb/examples$ python specimen.py
12023,114#14#0698 on WHOLE ROCK
Result: TiO2 0.5 wt%
(base) alf@MajorTom:~/gitwrk/pymoondb/examples$
```

Jupyter notebook (in examples/)



References

Lehnert, K. et al., MoonDB: 50 Years of Lunar Sample Data Ready for the Data Revolution (2018) 50th LPSC, Abstract #2996.