Update

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Outline

1. Scope of HAPI project
2. Server updates
3. Client updates
4. Specification updates

1. Scope

- Development of standard for HTTP endpoints for time series data
- Development of standard for metadata and data streaming format
- Work with server developers to add HAPI endpoints to existing services or create a new HAPI server
- Outreach to get more data available through the standard
- Development of generic servers
- Development of clients

Higher-level search is left to SPASE

2. Server Updates

1. CDAWeb
2. WDC
3. INTERMAGNET
4. SuperMAG
5. CCMC

2.1 Server Updates - CDAWeb

- 3503 datasets
- Compete Rewrite (Java) by Jeremy Faden in progress (dev server). Release in summer.
- Thorough testing
- Backwards compatible
- Significant improvements in metadata
- Will include all Master CDF and all.xml metadata (with patches to normalize attribute names, etc.)
- Added time varying support variables

2.2 Server Updates - WDC

- World Data Center Edinburgh
- https://hapi-server.org/servers/#server=WDC
- 5354 datasets
- Ground magnetometer data from ~1900 - present
- The started with Python/FastAPI and added basic HAPI support in ~2 weeks

2.3 Server Updates - INTERMAGNET

- 2987 datasets
- https://hapi-server.org/servers/#server=INTERMAGNET
- Ground magnetometer data from ~1990 - present
- The started with in-house Java-based server and added HAPI support in ~2 weeks

2.4 Server Updates - SuperMag

- Development version available since late May
- https://hapi-server.org/servers/#server=SuperMAG
- 601 datasets
- Ground magnetometer data and custom indices
- Added HAPI support to existing API (pass-through server that calls existing API using Python client and serves using FastAPI).

2.5 Server Updates - CCMC

- 300 datasets
- https://hapi-server.org/servers/#server=CCMC_ISWA
- Has had HAPI server for ISWA (Integrated Space Weather Analysis) for ~5 years
- Considering adding for CAMEL API (Comprehensive Assessment of Models and Events using Library Tools)
- Considering adding simulation-derived time series

3. Client Updates

1. Data Explorer (http://hapi-server.org/servers/)
2. Python Data Client (hapiclient)
3. Python Plot Client (hapiplot)
4. Python Plot Server Client (hapiplotserver)

3.1 Client Updates - Data Explorer

- Web-based interface: http://hapi-server.org/servers/
- Originally developed for debugging, basic exploration, and auto-creation of scripts
- New features added periodically, but uses external resources when available, e.g., Autoplot and KNMI for plotting (and CDAWeb plotting for CDAWeb data).
- Many recent usability additions

3.2 Client Updates - hapiclient

- Considering separation of of time handling into stand-alone library (for use in Python servers).
- Adding support for proxies
- Some rewrite needed. Although most packages that use wrap in way consistent with package style, still logging is unconventional and need to modify caching to be consistent with proposed HAPI cache standard.

3.3 Client Updates - hapiplot

- Intended for quick previews with expectations users will want to do things their own way.
- There is some demand for more flexibility.
- Will separate out datetick and heatmap (spectrogram) parts into different packages.

3.4 Client Updates - hapiplotserver

- Thin interface to hapiplotserver
- Used by the HAPI Data Explorer
- Considering exposing more configuration options to HAPI Data Explorer.

Specification Updates

Some key additions in 3.X series include

- location and geoLocation
- serverCitation and datasetCitation
- Instructions on how to write FAIR HAPI metadata
- warning and note in /info and /about endpoints
- specifying parts of parameters are vectors-related; specifying coordinate system
- add maxRequestDuration