

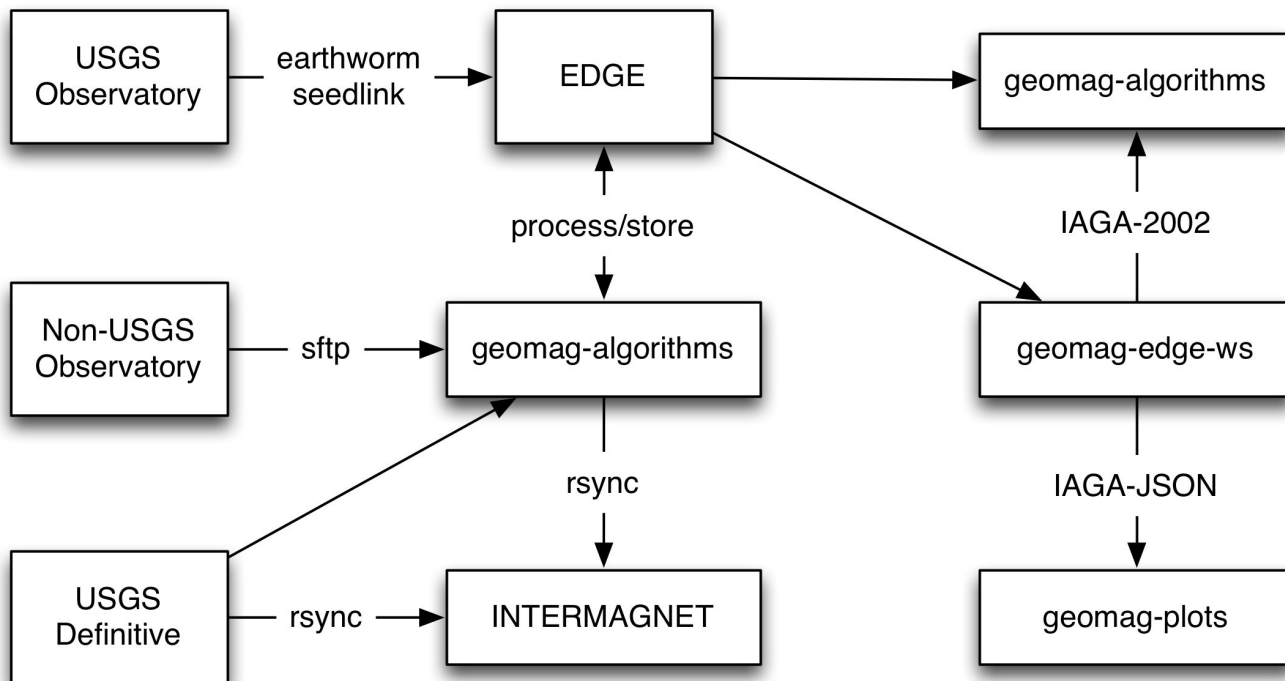
# Geomag Algorithms and EDGE CWB

2016-09-12

# Outline

- System Overview
- Geomag Algorithms
- EDGE Continuous Waveform Buffer (CWB)
- Geomag Web Service and Plots
- Future Development

# System Overview



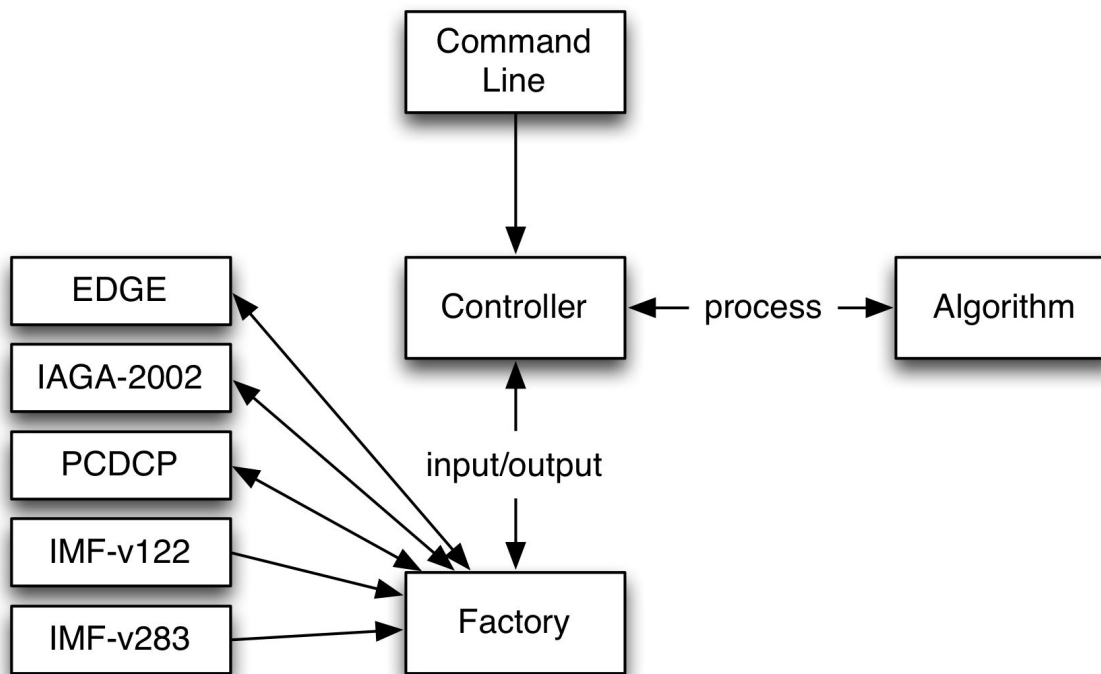
# Geomag Algorithms

- Developed to support real time algorithms
- Python API
- Command line interface
- Open source
  - Built on Obspy, SciPy, NumPy

# Geomag Algorithms

- Unit tests
- Continuous integration
- Docker image with Jupyter Notebook
  - <https://hub.docker.com/r/usgs/geomag-algorithms/>

# Geomag Algorithms - Overview



# Geomag Algorithms

- Coordinate Rotation (XYZ)
  - Sensor, Magnetic, Geographic
- Delta F
- SQ/SV/Disturbance
- Ongoing
  - Adjusted
  - DST

# EDGE CWB

- Java Continuous Waveform Buffer
- Developed for seismic waveform data
- Manages timeseries, not metadata

Patton, J.M., Ketchum, D.C., and Guy, M.R., 2015, An overview of the National Earthquake Information Center acquisition software system, Edge/Continuous Waveform Buffer: U.S. Geological Survey OpenFile Report 2015–1174, 10 p., <http://dx.doi.org/10.3133/ofr20151174>



# EDGE CWB

- Acquisition
  - Direct from seismic data loggers
  - Earthworm export/import
  - Seedlink
  - ObsRIO
- Storage
  - miniSEED

# EDGE CWB

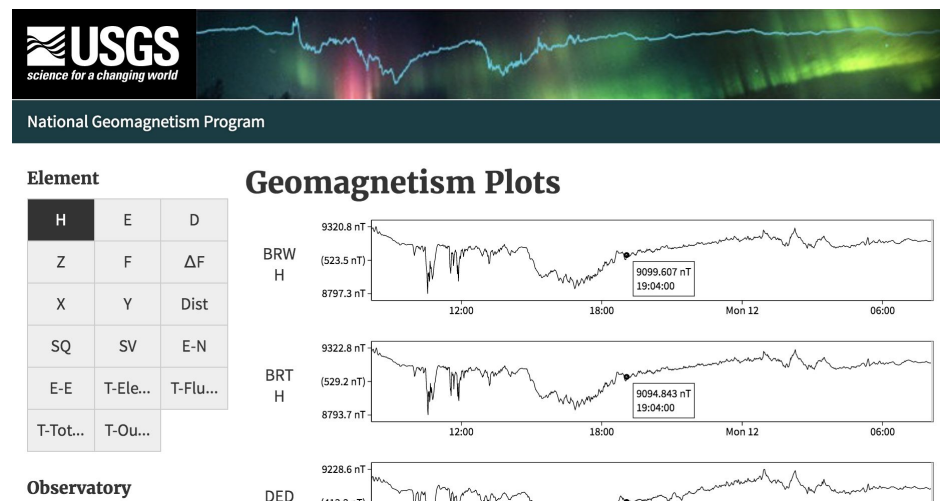
- Data access
  - Earthworm Waveserver service
  - miniSEED service
- Replication
  - SeedLink - miniSEED
  - DataLink - real time

# Geomag Web Service

- Uses EDGE Earthworm Waveserver interface
- IAGA-2002, IAGA-JSON formats
- <http://geomag.usgs.gov/ws/edge/>

# Geomag Plots

- Uses Geomag Web Service
- <http://geomag.usgs.gov/plots/>



# Future Development

- Algorithms
  - More flexible data flow control
  - Reduced latency (push?)
- Data replication
- Epoches metadata

# Thank You