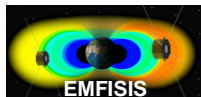


RBSP

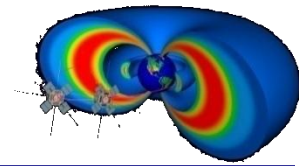
Radiation Belt Storm Probes

EMFISIS SOC Operations



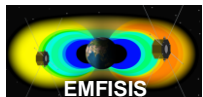


EMFISIS SOC Status



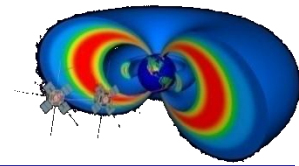
RBSP
Radiation Belt Storm Probes

- **SOC development continues**
 - We want LOs!
- **EMFISIS SOC team spent most of the past two months resolving issues caused by forced MET clock jumps during I&T while catching the remote live streams from GSEOS**
 - The MET Clock was jammed over 150 time during TVAC.
 - EMFISIS only operates in MET. Because of the method the burst buffer is handled, ground receipt time is meaningless. Therefore we need clean MET to realtime conversion.
 - All this development was for processes we will not utilize during standard flight operations as we expect to process MOC delivered L0 files.
 - In conclusion, we are not fans of jamming the clock, and particularly not during our CPT.
- **All products are at the L1 stage.**
 - Need to finalize CDF Metadata in L1 files.
- **Ongoing work**
 - L2 and L3/4s are in development.
 - L2 housekeeping is complete
 - UNH is working on code for Magnetometer L2 products (looking good)
 - Waves L2 products just need application of baseline calibrations for completion
 - (data taken in January and final analysis is just about complete).
 - Need to merge Fast and Slow survey
 - Need to generate “lite” version of spectra (removal of off diagonal components, add total spectra)
 - Looking at generating a L2 of SC housekeeping quantities (currents and voltages).
 - Plan to have some of these processes in place for MSIM 4.
- **Working with Jeremy to enhance Autoplot**
- **Planning to start an events list for Autoplot**





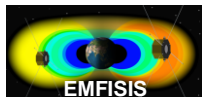
EMFISIS SOC File system



RBSP
Radiation Belt Storm Probes

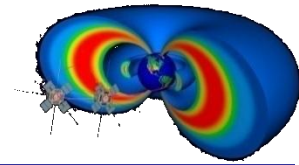
- **Filename Convention (current version, may not be final)**
 - [spacecraft]_[product]_[instrument]-[Level]_[Y\$m\$d]_v[version].cdf
- **Directory Structure**
 - <http://emfisis.physics.uiowa.edu/flight/>
 - L RBSPA
 - L L1
 - L L2
 - L 2012
 - L 08
 - L 23
 - L ...
 - L ...
 - L L3
 - L RBSPB

Go to: [http://emfisis.physics.uiowa.edu/Spacecraft I T/2012-03-13 MSIM3/](http://emfisis.physics.uiowa.edu/Spacecraft_I_T/2012-03-13_MSIM3/)
 This is Mission SIM 3 data and is our testbed for data product generation and dissemination.



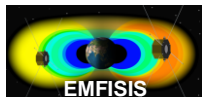


EMFISIS CDF Files



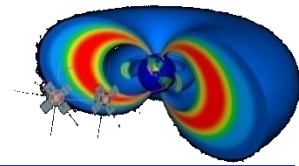
- **EMFISIS now uses TT2000 Epoch exclusively for all CDFs.**
- **Files stored and labeled such as to be easily aggregated by Autoplot**
- **eg: rbsp-a_HFR-spectra_emfisis-L1_20130215_v1.2.1.cdf**
- **[spacecraft]_[product]_[instrument]_[Level]_[$\$Y\$m\$d$]_v[version].cdf**
 - $\$Y$ year 4 digits [2012, 2013,.....]
 - $\$m$ month 2 digits [01,02,03,.....]
 - $\$d$ day 2 digits [01,02,03,.....]
- **PNGs of daily quantities will be generated for PNGWALK**
- **Qstreams of most quantities will be generated for viewing in autoplot.**

RBS
Radiation Belt Storm Probes



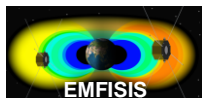


EMFISIS Science APIDs



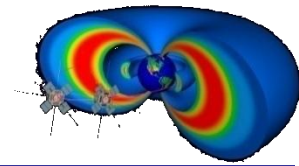
RBSP
Radiation Belt Storm Probes

- **0x290 - Uncompressed magnetometer [Survey]**
- **0x292 - Compressed magnetometer [Survey]**
- **0x293 - Failsafe magnetometer**
- **0x2A0 - HFR Waveform [Burst]**
- **0x2A1 - HFR Spectra [Survey]**
- **0x2A3 - HFR Spectra - Fast Survey [Burst]**
- **0x2B0 - WFR Waveform [Survey]**
- **0x2B2 - WFR Spectral Matrix [Survey]**
- **0x2B3 - WFR Spectral Matrix - Fast Survey [Burst]**
- **0x2B4 - WFR Waveform [Burst]**
- **0x2B5 - 30ms Spectral Matrix - 16 Bit [Burst]**
- **0x2B6 - WNA Data [Burst]**
- **0x2B8 - WFR Continuous Waveform [Burst]**
- **0x2BF - 30ms Spectral Matrix – 32 Bit [Burst]**
- **0x28C - Space Weather**



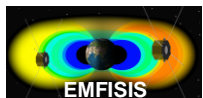


Survey [products]

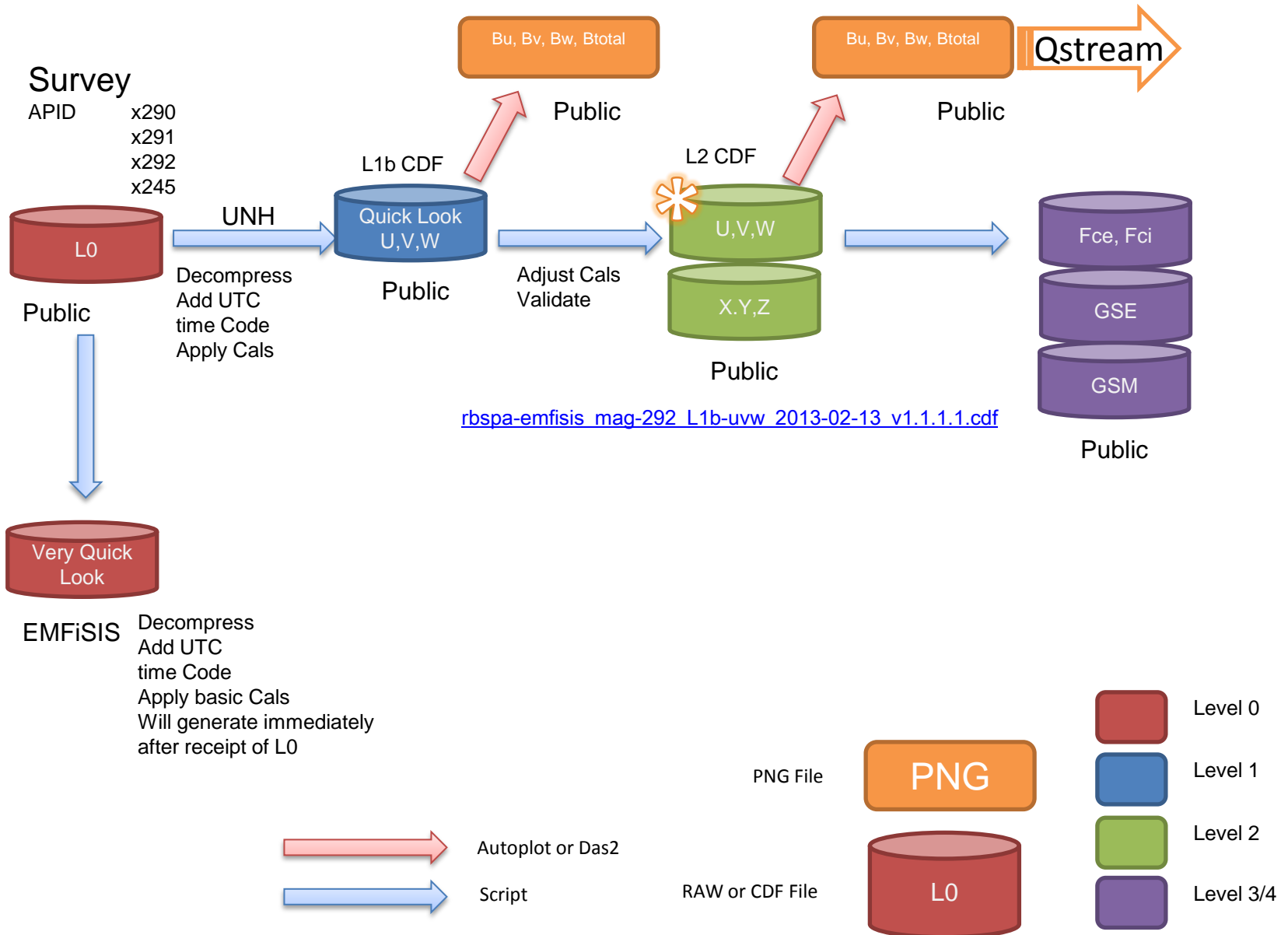


RBSP
Radiation Belt Storm Probes

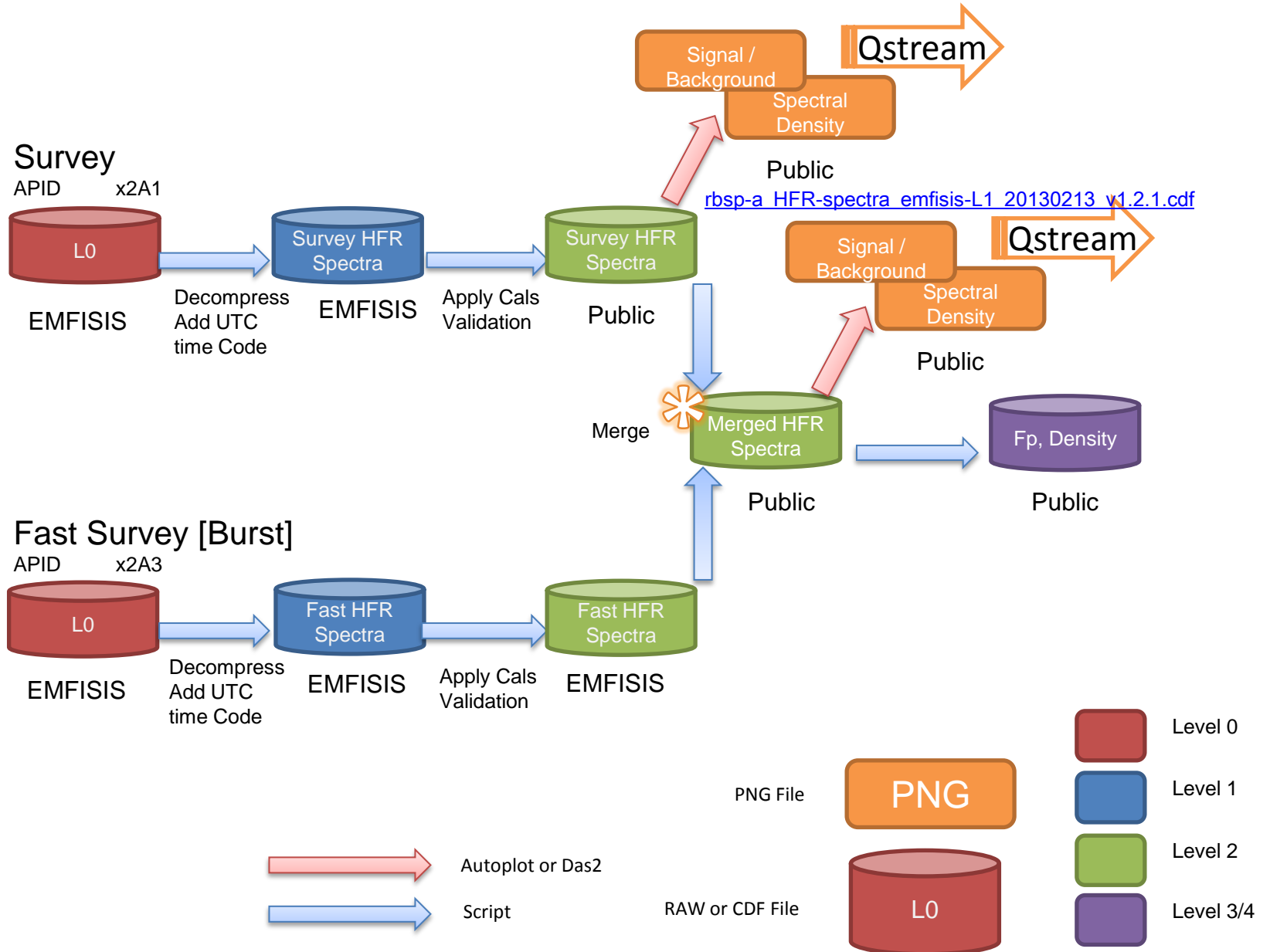
- **[HFR-spectra-merged]**
 - Single axis spectra (selectable axis: Eu, Ev, Ew)
 - 10 kHz to 400 kHz
 - 1 spectra every 6 seconds [HFR-spectra] pul 1 spectra every 0.5 seconds when fast survey is active.
- **[WFR-spectra-lite]**
 - E-Total, B-Total, (Eu, Ev, Ew), (Bu, Bv, Bw) Spectra derived from [WFR-spectral-matrix-merged]
 - 4 Hz to 12 kHz
 - 1 matrix every 6 seconds [HFR-spectral-matrix] plus 1 spectra every second when fast survey is active.
- **[WFR-spectral-matrix merged]**
 - Full spectral matrix from the two vector measurements (E and B)
 - 4 Hz to 12 kHz
 - 1 matrix every 6 seconds [HFR-spectral-matrix] plus 1 spectra every second when fast survey is active.
- **[Mag-uvw] _emfisis_L1b (file names not implemented yet)**
 - 64 vectors a second (unless in failsafe mode then 1 vector per second)
 - Quicklook - calibrations not verified! Not for use in scientific analysis.
- **[Mag-uvw] _emfisis_L2 (file names not implemented yet)**
 - 64 vectors a second in uvw coordinate system (unless in failsafe mode then 1 vector per second)
 - Includes any boom alignment adjustments



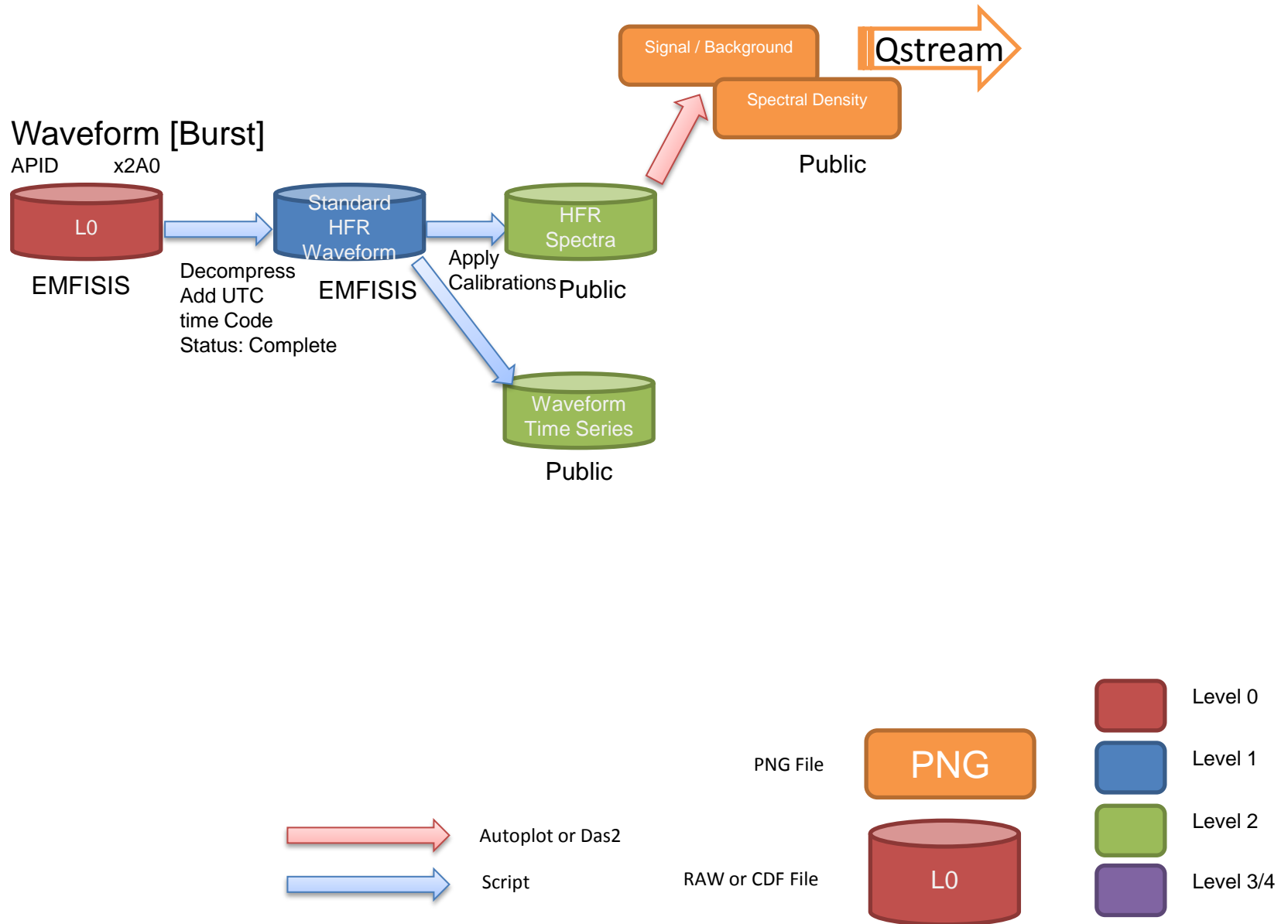
Magnetometer Product Cycle



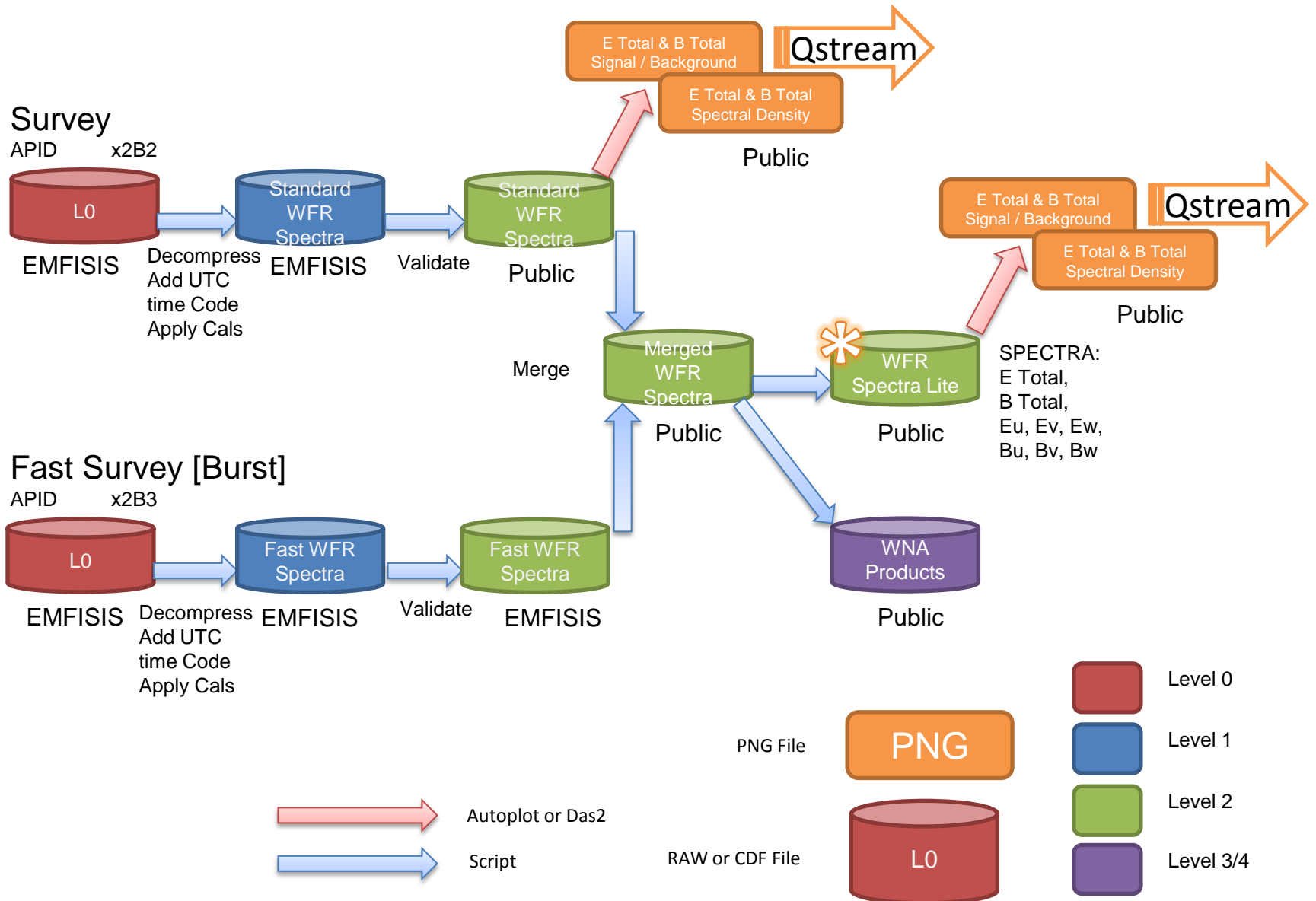
HFR Spectra Survey Product Cycle



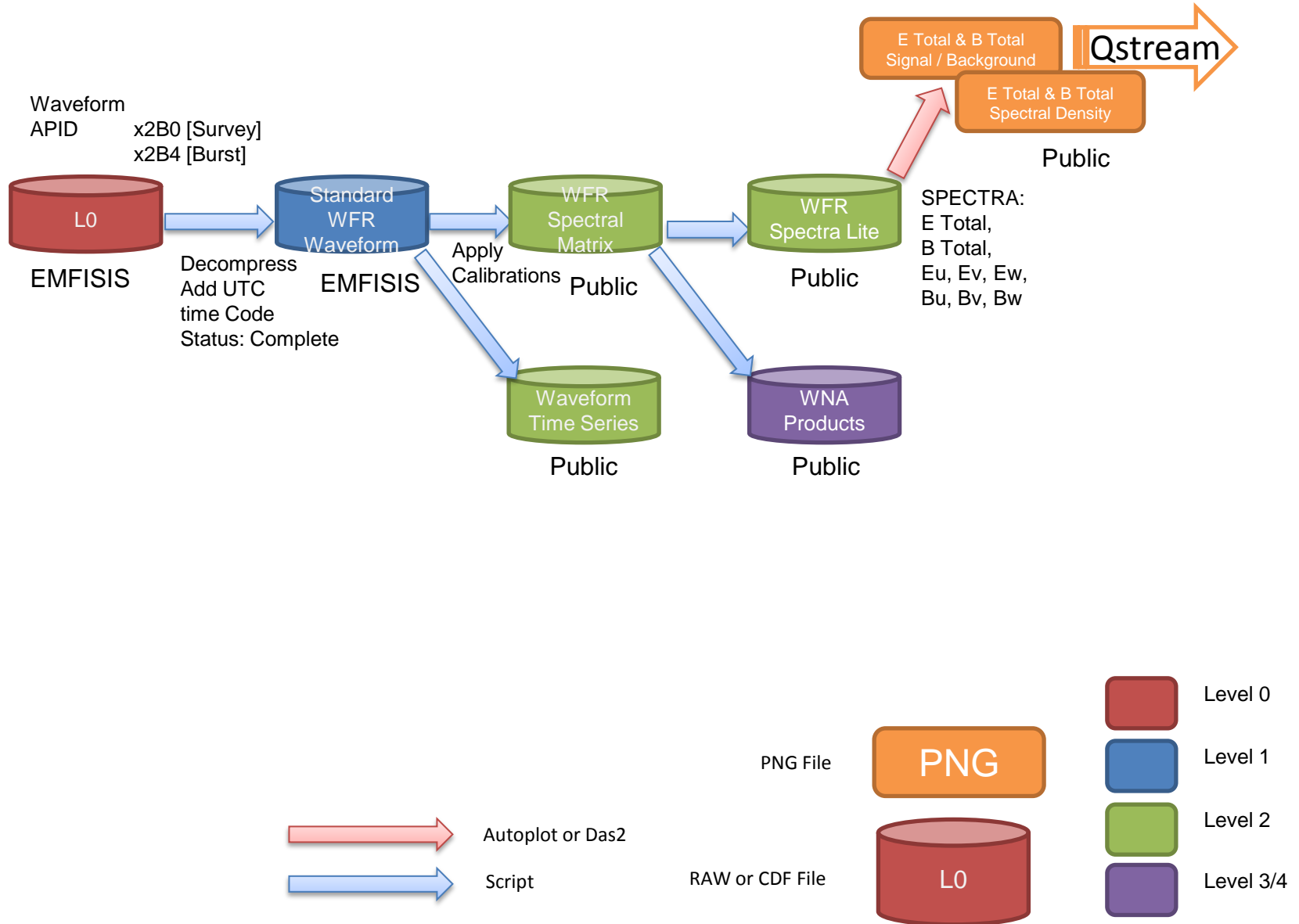
HFR Waveforms Product Cycle [Burst]



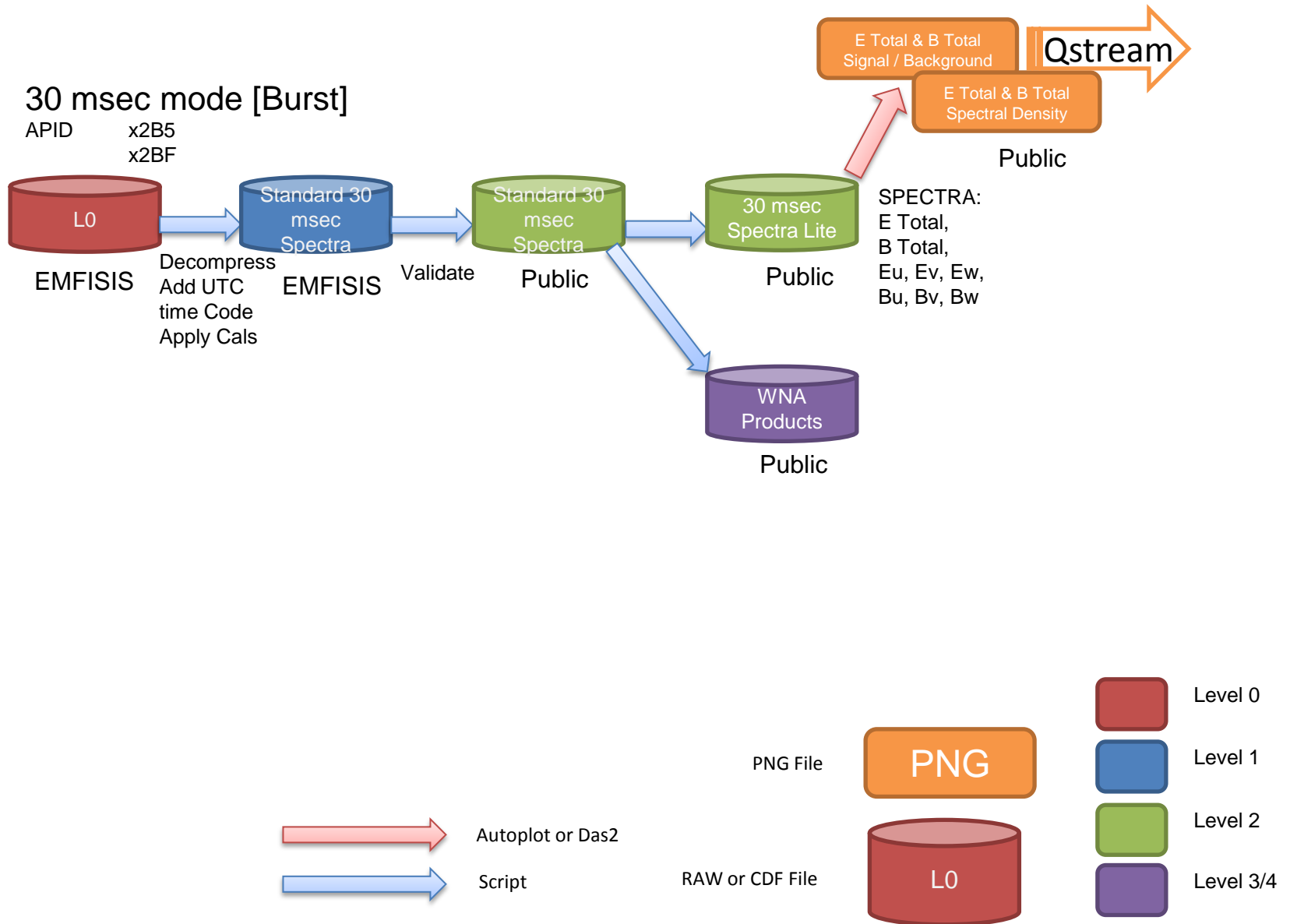
WFR Spectra Survey Product Cycle



WFR Waveforms Product Cycle

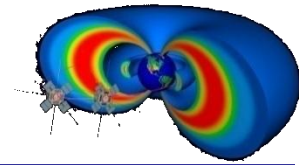


WFR 30 msec mode Spectra Product Cycle





Topics for discussion



RBSP
Radiation Belt Storm Probes

- **Any products not presented here that the team would like to request?**
- **Any Autoplot features desired?**
 - Working on adding ephemeris data to the time axis of autoplot
 - What quantities to best incorporate?
 - Likely will need to generate an ephemeris files for autoplot to read.
- **Who will generate orbit files for autoplot orbit selection?**
 - Where will they be maintained.
 - Only one set needs to be generated for the whole community to utilize.

