



International Federation of Digital Seismograph Networks

FDSN Working Group V

GA 2 Summary

W Crawford



Attendees

Wayne Crawford	IPGP/CNRS
Tim Ahern	EarthScope-Oceans
Chad Trabant	IRIS
Luděk Vecsey	IG CAS
Rob Casey	IRIS
Michelle Grobbelaar	CGS
Joel Simon	EarthScope-Oceans
Carlo Cauzzi	ORFEUS
John Collins	OBSIC
Spahr Webb	LDEO
Wen-Tzong Liang	IESAS
Peter Danecek	INGV / MedNet



2019 Action items 1/2

- **2019.01: Review and evaluate Prague 2015 SOH recommendations, specifically engaging WG1 and WG2 (Beaudoin)**
- **2019.02: Distribute SOH proposal for comment to equipment manufacturers (Beaudoin)**

Bruce Beaudoin could not be at this meeting, but provided two documents: version 2019135 of an SOH proposal and an associated Excel spreadsheet. The new Chair and Vice Chair need to determine if/how this was distributed and if the review and evaluation was completed.



2019 Action items 2/2

- **2019.03: Form a group to establish requirements for documenting moving stations via time-reference location and orientation records (Beaudoin, Ahern)**

A small group was formed and a proposal written which will be presented by Tim Ahern. Bounced off of Bruce Beaudoin who thought it could work for PASSCAL, talked mostly with Mermaids group (Nolet, J Simon, F Simons)



Proposal of GeoCSV format for rapidly changing parameters

- Tim Ahern wrote formal proposal and gave a presentation
- Idea is to address data that SEED doesn't handle, for example
 - MERMAIDS, glacier and icesheet stations whos positions change over time
 - H2O station whos gain changed 100s of times/day
 - Rapidly changing azimuths for stations near poles



Proposal of GeoCSV format for rapidly changing

5 POSSIBLE ELEMENTS – ESO EXAMPLE

Sensor orientation could go here

Header		Column					Row Headers									
Type		Time and SNCL			Position			Sensor				Timing				
#field_unit	ISO_8601	unitless	unitless	unitless	degrees_north	degrees_east	meters	unitless	factor	hertz	unitless	hertz	seconds	seconds		
#field_type	datetime	string	string	string	float	float	float	float	float	float	string	float	float	float		
MethodId	StartTime	Network	Station	Location	Channel	Latitude	Longitude	Elevation	Depth	SensorDescri	Scale	ScaleFrequer	ScaleUnits	SampleRate	TimeDelay	TimeCorrection
Measurement	2018-08-05T	MH	P0008		nan	-12.008233	-172.0231	0	0	MERMAIDHy	nan	nan		nan	0.00003	nan
Measurement	2018-08-05T	MH	P0008		nan	-12.006967	-172.01872	0	0	MERMAIDHy	nan	nan		nan	-0.000062	nan
Measurement	2018-08-06T	MH	P0008		nan	-12.0477	-172.01357	0	0	MERMAIDHy	nan	nan		nan	0.437377	nan
Measurement	2018-08-06T	MH	P0008		nan	-12.047684	-172.01369	0	0	MERMAIDHy	nan	nan		nan	0	nan
Measurement	2018-08-06T	MH	P0008		nan	-12.047584	-172.01425	0	0	MERMAIDHy	nan	nan		nan	0	nan
Algorithm:au	2018-08-08T	MH	P0008	0	BDH	-12.074427	-171.99651	0	1531	MERMAIDHy	-149400		1 Pa	20	nan	-0.29087
Measurement	2018-08-15T	MH	P0008		nan	-12.205566	-171.90376	0	0	MERMAIDHy	nan	nan		nan	1.643707	nan
Measurement	2018-08-15T	MH	P0008		nan	-12.2059	-171.90405	0	0	MERMAIDHy	nan	nan		nan	0	nan
Measurement	2018-08-15T	MH	P0008		nan	-12.207367	-171.9055	0	0	MERMAIDHy	nan	nan		nan	-0.000184	nan
Measurement	2018-08-15T	MH	P0008		nan	-12.207784	-171.90599	0	0	MERMAIDHy	nan	nan		nan	0	nan
Algorithm:au	2018-08-16T	MH	P0008	0	BDH	-12.231257	-171.89015	0	1527	MERMAIDHy	-149400		1 Pa	20	nan	-0.242693
Algorithm:au	2018-08-17T	MH	P0008	0	BDH	-12.255579	-171.86842	0	1521	MERMAIDHy	-149400		1 Pa	20	nan	-0.523292
Measurement	2018-08-17T	MH	P0008		nan	-12.2612	-171.86581	0	0	MERMAIDHy	nan	nan		nan	0.569366	nan

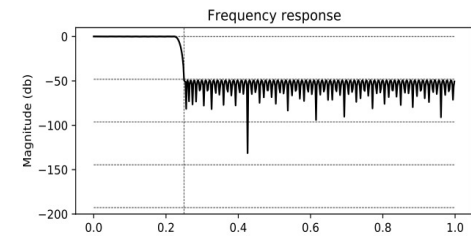
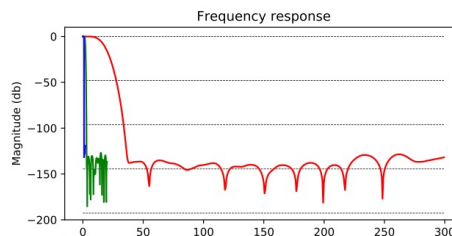
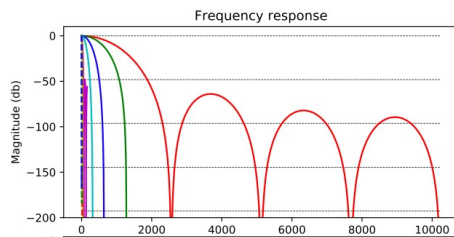
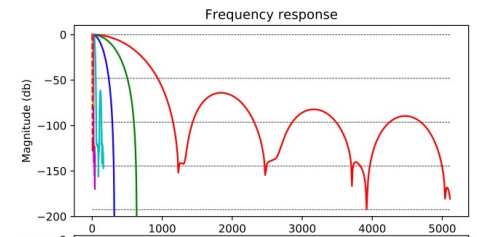
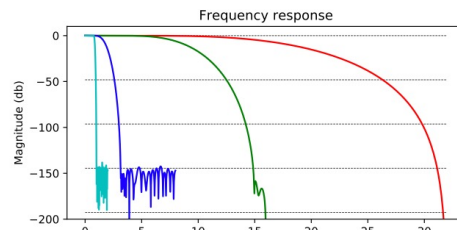
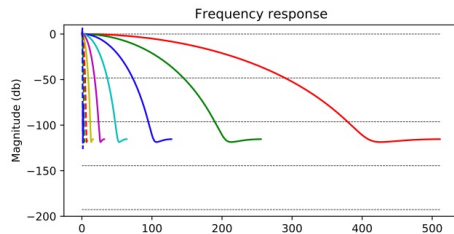
- Request WGV to handle the Proposal Phase, WGII the Evaluation and Adoption Phase
 - 6 month Proposal phase, looking for team members



Digital filters for data decimation

- Wayne Crawford presented work based on a 2017 action item
- Motivation
 - Make sure that instrument (esp OBS) dataloggers do not alias data into the recorded data
 - Identify minimum requirements for decimation filters
 - Allow a standard pathway for decimation of OBS data (usually recorded at only one frequency) for low-frequency studies, including metadata channel creation.
- Results
 - Analyzed frequency response of several dataloggers, commercial A/D chips and software decimators: there are large differences in filter strategies

Digital filters for data decimation



- To Do
 - Determine minimum standards for dataloggers
 - Evaluate effect of existing software decimation on data
 - Establish standards for software decimation
 - Implement these standards in a publically available tool that creates data and metadata on entire time series.



Collection of OBS facility data/metadata creation

- Goal: standarize OBS data processing and simplify data/metadata creation for FDSN data centers
- Questionnaire sent to 18 OBS parks globally, questions include:
 - clock drift correction
 - instrument response information in metadata
 - FDSN data avaiability
 - data and metadata creation tools
 - other questions and facilities to include
- Collecting results, will send out second questionnaire with suggested questions, then send compiled summary to WG



New actions

- 2021.01: Review GeoCSV proposal (Chair and Vice-Chair)
 - Select Proposal Review team, establish and enforce due date.
- 2021.02: Verify SOH proposal distribution and 2019.01 actions (Chair and Vice-Chair)
 - In cooperation with Bruce Beaudoin
- 2021.03: Definition of digital filters for data decimation (Crawford)
 - Expand group
 - Write article/report
 - Create software
 - Make formal proposal?
- 2021.04: Survey of OBS data/metadata creation (Crawford)



Change of WG5 leadership

- Proposed Chair: Wayne Crawford (IPGP-CNRS)
- Proposed Vice-Chair: Kent Anderson (IRIS)
 - Question about institutional dominance with 3 IRIS chairs or vice-chairs