IOOS HF Radar Range Series Archive Update

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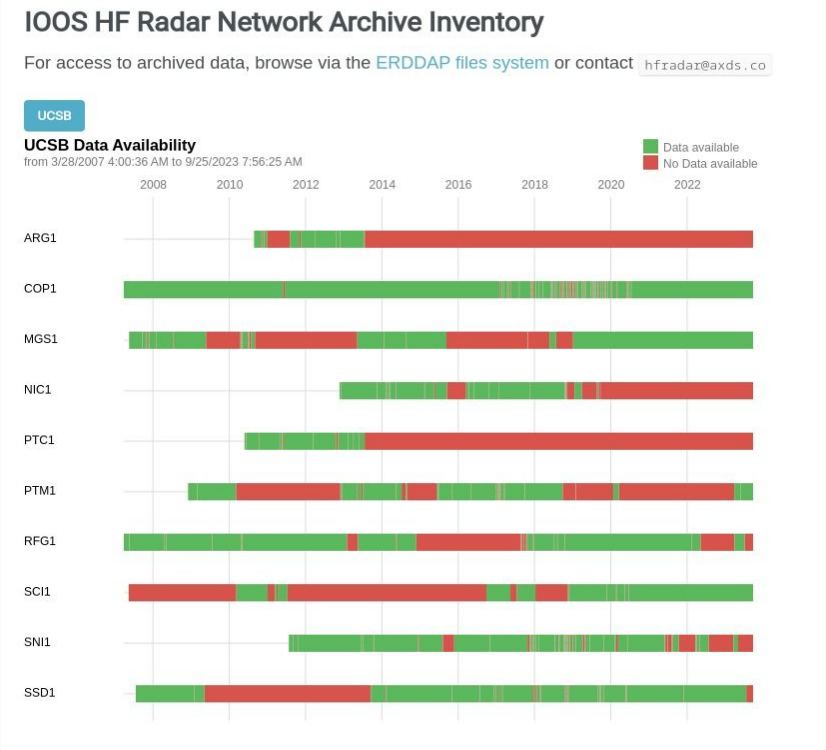
Background

- Goals
  - Organize near-real time HF radar range series and instrument config files from all IOOS HF radar operators
  - Advertise per-site data availability on archive inventory website, updating in near-real time
  - Make archive data available for download
- Why?
  - Range series are an ideal archive format because they can be used to generate many types of analyses and end products (e.g. ship detection)
  - “...it is advisable to save all Range Series (.rs) data files, from which radial diagnostic information, Cross Spectra (.cs) files, and all the derived oceanographic variables can be recalculated, allowing also for different reprocessing settings.” [1]
- Status
  - Receiving near-real time data from 10 UCSB sites via rsync
  - Data updates are reflected in archive inventory within minutes
  - Currently at 7 million files, 9 TB for one operator

[1] Mantovani, C.; Corgnati, L.; Horstmann, J,; Rubio, A.; Reyes, E.; Quentin, C,; Cosoli, S.; Asensio, J.L.; Mader, J. and Griffa, A. (2020) Best Practices on High Frequency Radar Deployment and Operation for Ocean Current Measurement. Frontiers in Marine Science, 7:210, 21pp. DOI: 10.3389/fmars.2020.00210

New Features

Near-real time data availability in archive (minutes)



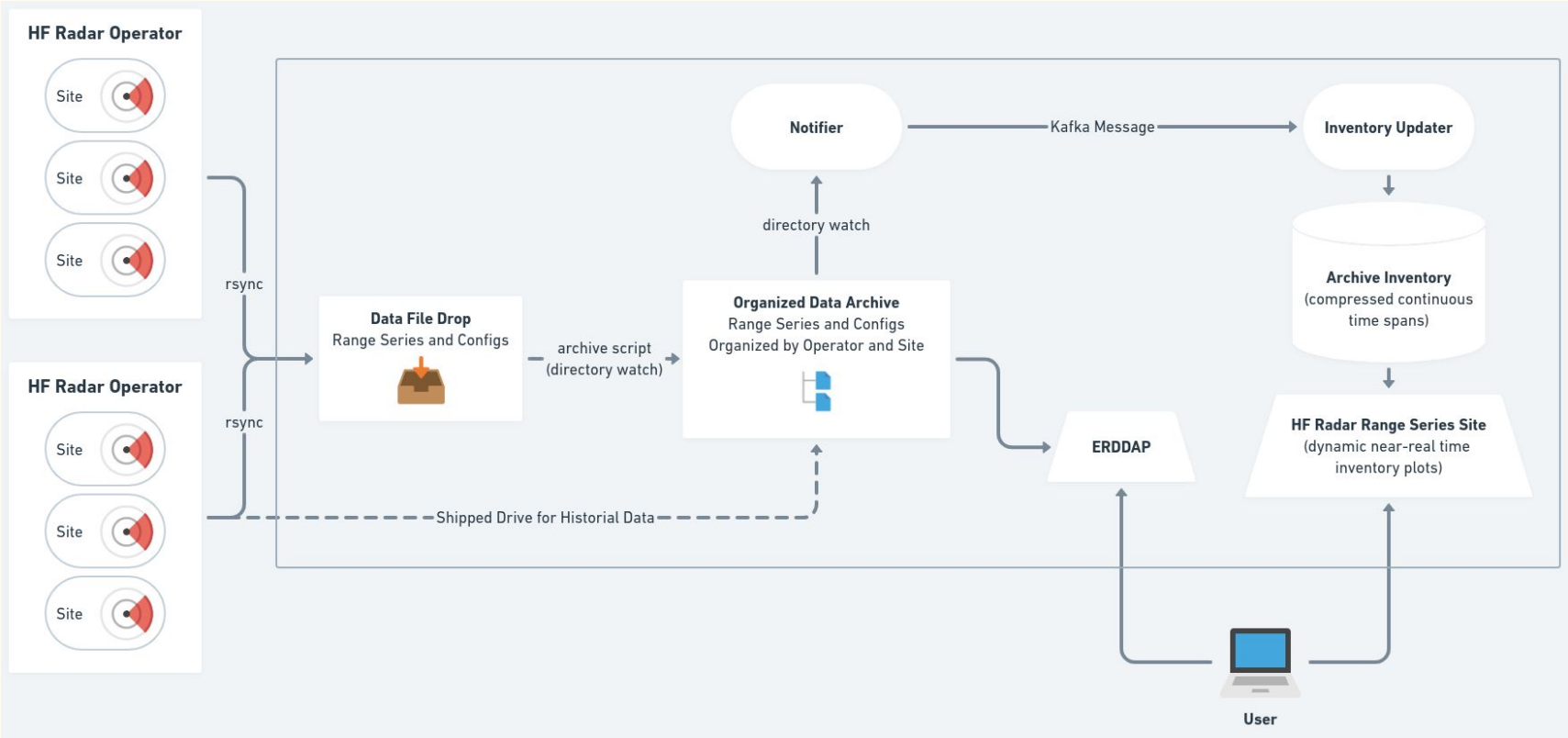
New Features

Data and config download via ERDDAP

Name	Last modified	Size	Description
Parent Directory	-	-	
Rng_COP1_2023_09_26_000627.rs	26-Sep-2023 01:04	1593933	
Rng_COP1_2023_09_26_001049.rs	26-Sep-2023 01:04	1593933	
Rng_COP1_2023_09_26_001505.rs	26-Sep-2023 01:04	1593933	
Rng_COP1_2023_09_26_001921.rs	26-Sep-2023 01:04	1593933	
Rng_COP1_2023_09_26_002337.rs	26-Sep-2023 01:04	1593933	
Rng_COP1_2023_09_26_002753.rs	26-Sep-2023 01:04	1593933	
Rng_COP1_2023_09_26_003209.rs	26-Sep-2023 01:04	1593933	
Rng_COP1_2023_09_26_003625.rs	26-Sep-2023 01:04	1593933	
Rng_COP1_2023_09_26_004041.rs	26-Sep-2023 01:04	1593933	
Rng_COP1_2023_09_26_004457.rs	26-Sep-2023 01:04	1593933	
Rng_COP1_2023_09_26_004913.rs	26-Sep-2023 01:04	1593933	
Rng_COP1_2023_09_26_005329.rs	26-Sep-2023 01:04	1593933	

Name	Last modified	Size	Description
Parent Directory	-	-	
Previous/	-	-	
AnalysisOptions.txt	07-Aug-2023 17:47	2116	
AnalysisVerbocity.txt	17-Mar-2022 23:32	824	
AngSeg.txt	17-Mar-2022 23:32	935	
Archivalist_Pfs.plist	17-Mar-2022 23:32	44939	
Archivalist_Radial.plist	17-Mar-2022 23:32	49999	
Archivalist_Waves.plist	17-Mar-2022 23:32	42544	
CheckForSpectra.plist	07-Jul-2022 17:24	322	
FirstOrderOptions.txt	07-Aug-2023 17:47	186	
Header.txt	07-Aug-2023 17:47	3290	
IdealPattern.txt	17-Mar-2022 23:32	39443	
ImageOptions.txt	17-Mar-2022 23:32	821	
MeasPattern.txt	06-Feb-2023 23:09	24378	
PatternFromSpectra.plist	17-Mar-2022 23:32	514	
Phases.txt	06-Feb-2023 23:41	185	
RadialArchiver.plist	17-Mar-2022 23:32	516	
SeaSondeAcquisition.plist	30-Jun-2023 20:08	11275	
SeaSondeController.plist	06-Jan-2023 17:43	12123	
SeaSondeRadialSetup.plist	06-Feb-2023 23:41	309	
SeaSondeRelease.txt	30-Jun-2023 20:08	30	
Sentinel.plist	01-Jul-2022 19:00	1006	
Sentinel_Task_Radial.plist	16-Dec-2021 00:55	2392	
SpectraArchiver.plist	17-Mar-2022 23:32	358	
SpectraAverager_Radials.plist	24-Jan-2023 19:08	2600	
SpectraAverager_Waves.plist	24-Jan-2023 19:04	2615	
WaveDisplay.plist	24-Jan-2023 22:38	4737	
WaveForFiveModel.txt	07-Feb-2023 16:09	2239255	
WaveModel.plist	05-Jan-2023 22:42	990	

System Diagram



Next Steps

- Expand to additional operators beyond UCSB
- Enable multi-file resumable downloads with UI tool to generate download curl scripts
- Improve UI inventory plot rendering performance
- Make deployment and code more robust
  - Health checks
  - High availability/load balancing
  - More hardware resources

👏 Credits

- 👨‍✈️ Brian Zelenke (IOOS) - steering goals and direction of project.
- 🙌 Brian Emery (UCSB) - initial data provider and patient trailblazer.
- 💪 Ahmad Jiha (Axiom) - co-planning and implementing this work. Props to Ahmad!