

901502 - Ocean Soundscape

Week 51

1. Brent Jones
 - a. Meeting
 - b. Clustering workflow on a Mac
2. Carlos Rueda
 - a. Reviewing PBP PR by Michael R. (NOAA)
 - b. Group mtg.

Week 50

1. Danelle Cline
 - a. Recording computer setup. RAID and new user account done and in the MARS lab.
 - b. Soundscape OpenAI Whisper model pipeline
2. Brent Jones
 - a. Getting clustering routines to work in newer Julia env
 - b. Spinning up Julia on a Mac

Week 49

1. Duane Edgington
 - a. Continued work preparing MARS data for analysis with Whisper and Google Kaggle multi-species whale detector. Using [OpenSoundscape](#)
 - b. Stepped through Whisper as an endpoint on AWS Sagemaker
2. Brent Jones
 - a. Meetings going over Julia environment

Week 48

1. Danelle Cline
 - a. Discussion on Whisper model ML exploration and next steps with the team. Did you know that a humpback song transcript starts with Thank You, Thank You?
 - b. Meeting with NOAA contractor to discuss PBP pull request for a workflow agent
 - c. Sadly, the new hydrophone is silent due to power issues on the MARS replacement node. The livestream was up for about a day. IS is preparing a new recording computer as planned.
2. Duane Edgington
 - a. Continued exploration Whisper model and google kaggle multispecies whale model

- b. Presented Whisper overview to John R., Danelle C.
- 3. Carlos Rueda
 - a. Group mtg with Micheal R. (NOAA) to discuss his recent PBP branch/PR and next steps.

Week 47

- 1. Duane Edgington
 - a. Returning to ocean soundscape work, including Whisper eval and Google multispecies-whale Kaggle model eval
 - b. Team meeting

Week 46

- 1. Danelle Cline
 - a. Recording computer on order

Week 44

- 1. Danelle Cline
 - a. Submitted request for computer replacement for MARS lab soundscape machine with RAID as it has reached the end of life
 - b. PyPAM/PBP meeting with collaborators to discuss expanding its use with different hydrophones using the pyhydrophone python package
- 2. Carlos Rueda
 - a. Meeting with PyPAM team re synergy with PBP
 - b. Meeting with NOAA/NEFSC re PBP/PyPAM Soundcoop followup

Week 42

- 1. Danelle Cline
 - a. Discussion on Kaggle Google multi-species model results and [OpenAI Whisper model](#); latter may prove more useful for general soundscape analysis.
- 2. Duane Edgington
 - a. Summarized progress using [Kaggle Google multi-species whale vocalization detector/classifier](#) with John R. and Danelle C. Very encouraging results with our test MARS 1 hour recording containing orca calls. Lots to do to continue evaluation and preparing additional MARS sound recordings for processing through the model. Run on Colab.
 - b. Assisted John and Carlos in hosting Jupyter notebooks for processing/demo on Google Cloud VertexAI
- 3. Carlos Rueda
 - a. Set up and now successfully running PBP notebook in Google Cloud Vertex AI environment. Thanks Duane for the assistance and testing.

Week 41

1. Brent Jones
 - a. Comparing reprocessed clicks to previous processing in 2021
2. Carlos Rueda
 - a. Group meeting.
 - b. Technical meeting about using Notebooks in Google Cloud (thanks Duane for the intro). We made very good progress toward running PyPAM/PBP. Initially we hit issues with dependencies... which I was then able to figure out ;. Also, Vertex AI Colab Enterprise proved to be more effective compared to Workbench. (But these are all preliminary explorations.)
 - c. The [/PAM_Analysis](#) volume mapping for our Jupyterlab@gizo got broken. I fixed it by just restarting the container.

Week 40

1. Duane Edgington
 - a. Continued exploration of [Whisper](#) for orca detection / classification, and experiments with Google's [multi-species whale detector / classifier](#)
2. Brent Jones
 - a. Comparing old Julia to new Julia on click detections

Week 39

1. Duane Edgington
 - a. Continuing exploration of Whisper LLM transformer fine-tuned to classify passive acoustic monitoring (PAM) data
 - b. Ran evaluation of Google's [multi-species whale vocalization detector/classifier](#) on MARS data. Lots of confusion/false positives – may need fine-tuning or data wrangling, or both to be useful to us.
 - c. Exploring fine-tuning DETR (object detection with transformer) on PAM data
2. Carlos Rueda
 - a. Attended (remotely) the morning session of the first day of the SoundCoop workshop. PBP demos went smoothly (thanks Danelle for presenting in person). Updated JupyterLab@gizo to the latest mbari-pbp 1.5.1.

Week 38

1. Danelle Cline
 - a. Preparing blue whale data for sharing as a HuggingFace dataset
 - b. Working with the team on materials for the upcoming SoundCOOP workshop to present PBP/PyPAM notebooks. This is a small hybrid conference with NOAA to discuss tools and methods for creating sound standards. They are interested in our work on cloud and scaling.

- c. Tested the just-released Google MultiSpecies model on blue whale A calls (performance not great, top-3 looking decent)
<https://www.kaggle.com/models/google/multispecies-whale>
- 2. Duane Edgington
 - a. Continued work on investigating Whisper LLM fine tuning for sound detection and classification. Next step Orca sounds...
- 3. Brent Jones
 - a. Meeting
- 4. Carlos Rueda
 - a. As part of preparations for the upcoming workshop in Boulder, `mbari-pbp` has been updated, now at 1.4.8. Team working on finalizing notebooks.

Week 37

- 1. Carlos Rueda
 - a. Meetings. More contributed PRs.
 - b. Set up an account (and ran key notebooks) on a VLIZ JupyterLab space as part of preparations for an upcoming workshop.

Week 36

- 1. Duane Edgington
 - a. Looking at Orcasound code base (training pytorch models)
- 2. Carlos Rueda
 - a. PBP work. Merged contributed PRs. `mbari-pbp` now 1.4.4.

Week 35

- 1. Danelle Cline
 - a. PBP upgrades to pbp-meta-gen code
 - b. Travel planning for upcoming workshop
- 2. Brent Jones
 - a. Looks like difference in processing for Python and Julia lies not in the filters or Teager EO, but in the combination of impulses. Continuing to diagnose

Week 34

- 1. Brent Jones
 - a. Python filter code producing different results than Julia filter. Investigating
- 2. Carlos Rueda
 - a. Meetings/exchanges.
 - b. `mbari-pbp` is now 1.4.0. JupyterLab@gizo also updated.
 - c. Enabled access to a titan share from within JupyterLab@gizo.

Week 33

1. Brent Jones
 - a. Running click detection on a single month and comparing to Sam's click detection routines. Working on Python code optimization and tuning
2. Carlos Rueda
 - a. More PBP work. All progressing well.

Week 32

1. Duane Edgington
 - a. Team meeting 8/8/2024.
 - b. Digging into [Orcasound code](#) for running inference to detect orcas. Thanks to Danelle for the pointer!
2. Brent Jones
 - a. Converting julia click detection to python. Measuring performance
3. Carlos Rueda
 - a. PBP (1.1) now has a new [porcelain API in PBP](#), which should be much more user friendly. All tested successfully in our JupyterLab environment.
 - b. Assistance to Michael R. (NOAA) re PBP use.

Week 31

1. Danelle Cline
 - a. Working on PBP plotting bug fixes with team
 - b. Travel plans for upcoming SoundCoop workshop
 - c. Discussion with EarthSpecies team about audio-to-audio search and model training collaboration
 - d. Hosted weekly group meeting (John on vacation)
2. Duane Edgington
 - a. Team meeting
3. Carlos Rueda
 - a. Advancing notebook spaces: [JupyterLab](#) on [gizo](#) (now more stable and with access to host machine for persistence), and an external one on <https://mybinder.org> in preparation for a NOAA workshop. Sent heads-up to the organizer regarding limited resources on mybinder.org.
 - b. With Danelle, worked on fixing long standing issues with PBP plotting in notebooks.

Week 30

1. Duane Edgington
 - a. Continued exploration of orca work. Data sets, published work.
 - b. Discussion with Intern Suzanne Statatos.
2. Brent Jones

- a. Finishing conversion of click detection code from Julia to python

Week 29

1. Duane Edgington
 - a. Continued exploration of orca work. Data sets, published work.
 - b. Some support of intern Suzanne on AWS.
2. Carlos Rueda
 - a. Meeting with the PBP team and NOAA.
 - b. PBP is now 1.0.8 (both [python package](#) and [docker image](#))
 - c. Advancing PBP use in <https://mybinder.org/>
 - d. Group meeting

Week 28

1. Duane Edgington
 - a. Returning to exploration of orca sounds and ML models
 - b. Discussion / meeting with intern Suzanne and John Ryan

Week 26

1. Carlos Rueda
 - a. Minor PBP repo maintenance

Week 25

1. Carlos Rueda
 - a. Group meeting. Presentation of planned internship project by Suzanne Stathatos.

Week 23

1. Duane Edgington
 - a. Prepared AWS user, Sagemaker Studio for incoming intern Suzanne Stathatos

Week 22

1. Carlos Rueda
 - a. Meeting with NOAA.

Week 21

1. Duane Edgington
 - a. Returning to orca model literature search
2. Carlos Rueda
 - a. Group mtg.

Week 18

1. Duane Edgington
 - a. Telecon with summer intern 2024 Suzanne Stathatos
2. Carlos Rueda
 - a. PBP documentation (still WIP) is now publicly available:
<https://docs.mbari.org/pbp/>
 - b. Put together google doc about [running PBP on Windows](#), shared with several NOAA collaborators.
 - c. Internship project group discussion (with the intern).

Week 17

1. Duane Edgington
 - a. Team meeting April 24.
2. Carlos Rueda
 - a. Meeting with various NOAA groups who are interested in applying PBP on their audio.

Week 16

1. Carlos Rueda
 - a. PBP notebooks

Week 15

1. Carlos Rueda
 - a. Brief soundscape analysis meeting.
 - b. Diagnosed issue with excessive use of bandwidth while fetching data from GCS past week.

Week 13

1. Duane Edgington
 - a. Participated in intern selection process
2. Brent Jones
 - a. Recieved NOAA SEC exhibit system. Swapped out old RP3 for a new RP4. Documented Dave's wiring. Removed/upgraded other features
 - b. Went to SC NOAA SEC and installed/tested exhibit
3. Carlos Rueda
 - a. Reviewed ~40 summer intern applications. Then discussion/selection with John R & Duane E.

Week 12

1. Duane Edgington

- a. Reviewing intern candidates. Due 3/23
 - b. Continuing evaluation/exploration of PAMguard windows software.
 - c. Installed and worked with Audacity to view spectrograms. Mac and PC.
- 2. Carlos Rueda
 - a. PBP (PyPAM based processing) software:
 - i. Now being packaged and published at PyPI. This step is taken after determining that potential integration into PyPAM itself (as discussed with its lead developer) is not a primary concern, at least in the foreseeable future.
 - ii. New documentation site: <https://docs.mbari.org/internal/pbp-doc/>, which is internal given the MBARI specific focus, but, eventually, there would also be a public-facing site.

Week 11

- 1. Duane Edgington
 - a. Team meeting
 - b. Exploring PamGuard, [Arbimon](#) passive acoustic monitoring software packages with Orca detectors.

Week 10

- 1. Duane Edgington
 - a. Explored Pamguard <https://www.pamguard.org/> Requires Microsoft Windows to run (their Mac version is not installable, and their support email is blocked)
- 2. Brent Jones
 - a. Trip to SEC to improve MBARI exhibit

Week 8

- 1. Carlos Rueda
 - a. Adjustments to PBP
 - i. Now explicitly adding PyPAM in requirements.txt. Various sources and documents updated accordingly.
 - ii. Several dependencies updated
 - iii. New PBP parameter to facilitate setting of metadata attributes from the command line

Week 7

- 1. Duane Edgington
 - a. Team meeting 2/14/2024
- 2. Carlos Rueda
 - a. [PBP](#) and [mbari/pbp](#) docker image updates; NRS11 and MB05 data processing; notebook updates, new scripts, etc.

Week 6

1. Duane Edgington
 - a. Team meeting Jan 31. Orca sound discussion.
2. Carlos Rueda
 - a. The mbari/pbp docker image is now 1.0.3. Container enabled and successfully tested on 'gizo': <http://gizo.shore.mbari.org:8899/> (thanks IS for installing docker on gizo)
 - b. With the team, delineating next steps (docker-based use cases, etc)

Week 5

1. Carlos Rueda
 - a. Based on an initial version by Danelle (thanks!), created (and [published](#)) dockerized image for running PBP in jupyter notebooks, with all requirements in place. Successful testing with NOAA datasets, which are located in Google Cloud storage.
 - b. Exchanges with collaborators.
 - c. Meeting with OrcaSound

Week 4

1. Carlos Rueda
 - a. Enabled access to Google Cloud Storage resources in PBP, as well as processing of sound files in 'flac' format. Successful testing.
 - b. Assisting our European collaborator with processing of SUD files.

Week 3

1. Duane Edgington
 - a. Team meeting Jan 17. Discussed detection of Orca sounds.
2. Carlos Rueda
 - a. Kickoff mtg / planning.
 - b. Hoping to have some progress done regarding google cloud file access by the Soundcoop meeting next week.

Week 2

1. Duane Edgington
 - a. Reading papers on ORCA sound detection/classification