

CoastWatch Satellite Course Introduction

Background, Objectives and Logistics

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NOAA CoastWatch Satellite Course

Anchorage, Alaska

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Versioning

- Wilson, 2017, WCN
- Tomlinson and Vogel, 2018, ECN
- Abecassis and Howell, 2018, PIN
- Wilson and Robinson, 2019, WCN



Instructors

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NOAA CoastWatch Satellite Course History

- 3-day (free!) course aimed at NOAA participants who want to learn how to access & use satellite data
- Developed in 2006 at the West Coast Node by Cara Wilson (and the late Dave Foley)
- The course has received some funding from the JPSS program but is usually operated without any funding.
- In 2018, the course was expanded, with the East Coast Node and the Pacific Node offering the course. This is the second course offered by the Caribbean/GoM node.
- The learning experience goes two ways. By conducting these courses, the CoastWatch program gets a better idea of users' needs and wants, and is better able to address those needs.



Why is satellite data underutilized within the 'wet' part of NOAA?

- Fisheries scientists and managers are often not familiar with the available datasets or how to access and manipulate them.
- Satellite data can be difficult to access, manipulate and process, particularly for people who have never used it before.
- Data is available from many sources, often poorly documented, each data access is different
- Rigorous 'data mining' is needed to match up satellite data with survey or telemetry records.
- Time-series of satellite data are relatively short compared to many fisheries datasets.

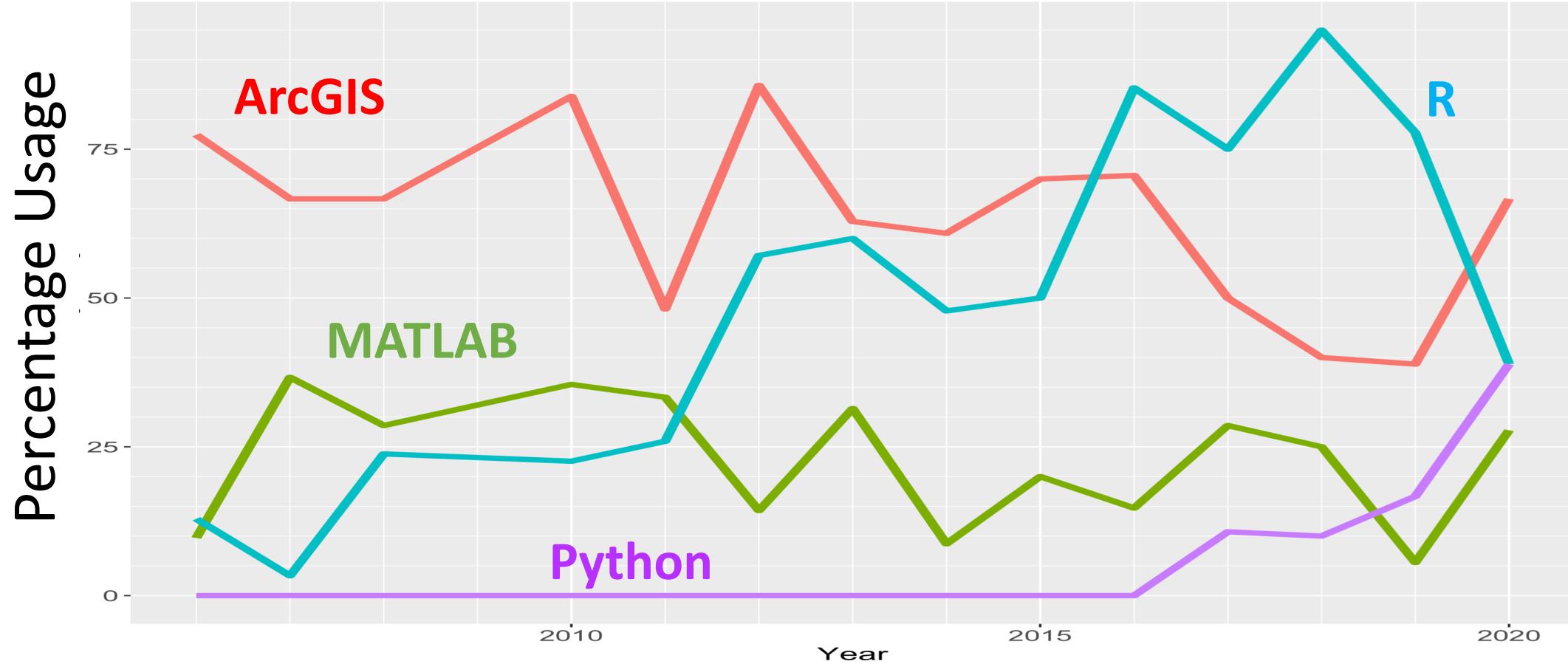


NOAA CoastWatch Satellite Course Philosophy

- The objective of the course is to show people how to access satellite data and use it in the environment they are used to working in – a somewhat challenging task!
- We focus on the software used the most widely by participants – primarily R, ArcGIS, and python, and to a lesser extent Matlab.
- This is not a “GIS course”, nor a “R course” but it includes elements of both.
- The course focuses on datasets available on CoastWatch ERDDAPs



Trends in Software Usage



Software Usage for this Class

| Software | Participant Usage (#) | Participant Usage (%) |
|----------|-----------------------|-----------------------|
| ArcGIS | 12 | 67% |
| Python | 7 | 39% |
| R | 7 | 39% |
| MATLAB | 5 | 42% |
| IDL | 1 | 5% |



Course Agenda – Day 1

Wednesday Morning

- 09:00-09:15 Course Introduction – *Cara*
- 09:15-09:30 Group Introductions
- 09:30-09:45 Introduction to CoastWatch – *Dale*
- 09:45-10:15 CW Gulf of Mexico node – *Joaquin*
- 10:15-10:30 *Break*
- 10:30-10:45 Intro to ERD Data Services – *Dale*
- 10:45-11:00 ERDDAP Exercise – *Dale*
- 11:00-11:30 Ocean remote sensing 101 – *Cara*
- 11:30 Lunch

Wednesday Afternoon

- 01:00-01:30 SST– *Cara*
- 01:30-01:45 ERDDAP exercise: Timeseries and hovmollers – *Cara*
- 01:45-02:00 Ocean color (chlorophyll) – *Cara*
- 02:00-02:30 Altimetry (sea surface height), Scatterometry (vector winds) and Salinity – *Dale*
- 02:30-03:00 *Break*
- 03:30-03:30 CoastWatch Utilities Software– *Michael*
- 03:30-04:00 What dataset should I use? – *Dale*
- 04:00-04:20 CARICOOS– *Julio*
- 04:20-04:40 Sargassum and Oil Spill Monitoring at NOAA – *Joaquin*
- 04:40-05:00 Hurricanes/Gliders/Ocean Debris – *Gustavo*

5 pm - Group Discussion somewhere with beer



Course Agenda – Days 2 & 3

Thursday

- 09:00-09:30 Data Extraction with R – *Cara*
- 09:30-10:00 Data Mining with R – *Joaquin*
- 10:30-11:00 *Break*
- 11:00-11:30 ArcGIS & the EDC – *Michael*
- 11:30-12:00 Data mining with Matlab – *Joaquin*
- 12:00-01:00 *Lunch*
- 01:00-02:00 Data extraction with python – *Dale & Joaquin*
- 02:00-05:00 Work on Projects

Friday

- 09:00-12:00 Continue on projects
- 12:00-01:00 *Lunch*
- 01:00-03:00 Continue on projects
- 03:00-05:00 Student project presentations
(5 minutes each)

?? about ERDDAP
?? about ArcGIS
?? about R
?? about Matlab
?? about python
?? about CoastWatch Utilities

Ask Dale, Joaquin or Cara
Ask Michael
Ask Cara or Joaquin
Ask Joaquin
Ask Dale or Joaquin
Ask Michael

5 pm - Group Discussion somewhere with beer



What We Expect from You

One Summary Slide

- At the end of the course submit one slide about your project or how you envision using satellite data in your future work. You will also be expected to present this slide to the group at the end of the course.
- These slides are important to NESDIS to demonstrate the utility and application of their products.
- Slides from previous course participants can be viewed in the ParticipantSlides.pptx in the Participant Slides folder on the Google drive. Slides are grouped largely by fisheries science center.



