Satellite Data Stakeholder Engagement Methodology Supports Regional Environmental Decision-Making Through Collaborative Applications

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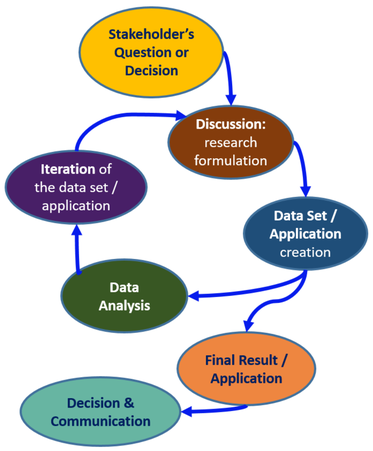
INTRO

- Environmental managers and decision-makers typically **don't use satellite data** in their management nor in making decisions, due to the technical know-how required.
- Hands-on, **research-oriented engagement**, directly with the stakeholder, can transform data into information and then to impactful knowledge, improving the **data value chain.**

TASK

Increase oceanographic satellite data usage by generating applications that permit ocean and coastal management decisions. This work is part of NOAA's CoastWatch/OceanWatch East Coast Regional Node.

ENGAGEMENT WORK FLOW



LESSONS LEARNED

- Thoroughly understand the stakeholder's question
  - consider audience, context, vocabulary differences
- Explain the advantages and limitations of the different satellite data sets being considered.
  - spatial/temporal resolution, accuracy, latency, etc.
- Collaborative data analysis puts the stakeholder in the process. **Feels invested in satellite data**.
- Have frequent discussions for feedback and iteration of the application.

Iterative & research-mode

stakeholder engagement

improves satellite applications

for making decisions

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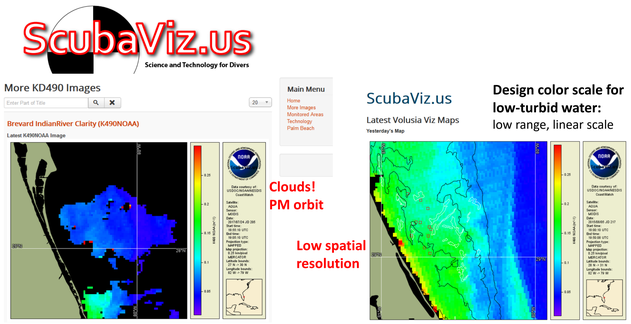
SUCCESS = Stakeholder **feels empowered** to apply satellite data to other management or research. Caveat: Research-mode engagement is labor intensive.

EXAMPLE APPLCATIONS

Research divers sample biology at artificial reefs

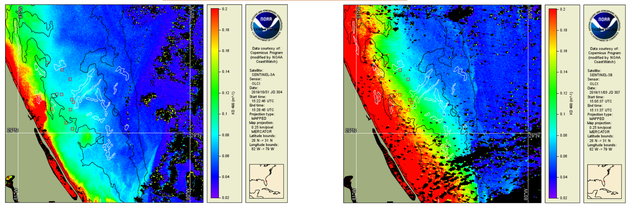
Decision: Will the water be too turbid to collect samples today?

- Requirements: near real-time, high res, low accuracy, low clouds
- Use Aqua MODIS Kd490, 1 km, afternoon orbit



Improvement: Sentinel-3 OLCI 300 m data, morning orbit
Better estimation at reef site, fewer clouds, more spatial coverage

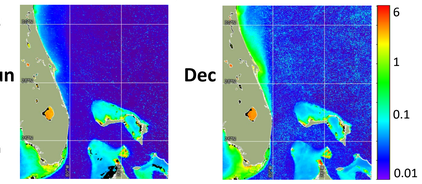
Oct 31, 2019 *increasing turbidity offshore* Nov 3, 2019



Research: Jun is least turbid month, Dec is most turbid

Climatologies

Jun **Dec**



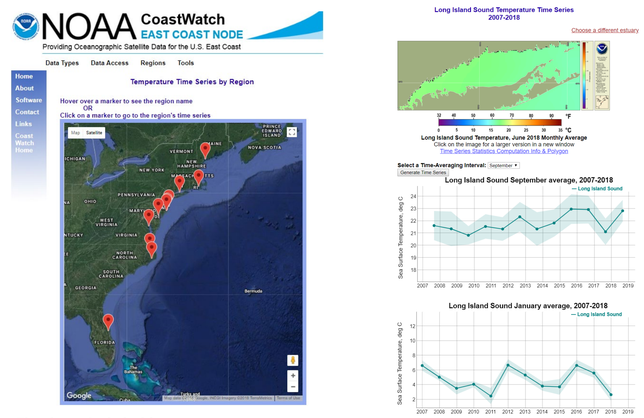
Thanks to Stakeholder:
Volusia County Reef Research Dive Team & CSD Solutions

Estuarine managers assess temperature trends

Decision: Will temperature changes impact biological resources, e.g. fish?

- Requirements: long time series, high res, high accuracy
- Use PODAAC MUR analyzed Sea Surface Temperature (SST) to assess temperature impact on biological resources
- Create **web time series display** for non-technical managers

Research: Rate of temperature change varies seasonally



Thanks to Stakeholder: EPA National Estuary Program