Integrated Management and Visualization of Animal Telemetry Observations

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Outline

• Opening Remarks
  o AT data applications
  o Complexity (different type of telemetry tags and many needs)
  o IOOS ATN Data Flow vision

• IOOS ATN DAC

• Closing remarks and next steps

• Wrap up, Q/A
Many tag types
Tagged Animal

Acoustic Receiver

Image Credit: POST
• Three interlocking parts (Receiver Metadata, Tag Metadata, and Detections) must be assembled to recreate an animal track
• Must keep track of Receiver Histories

• Metadata may be fairly complex:
  o Instrument attributes (e.g. tag and receiver programming)
  o Positions and position errors
  o Time (tracks)
  o Quality control
  o Attribution for objects served

  o Some of the receivers are carried by other large animals and Gliders.
Procedures of collecting oceanographic data (Hydrographic profiles) from CTD SRDL tags on e-seals or Sharks
DATA FLOW FOR ANIMAL TELEMETRY NETWORK

Archival tags
Satellite tags
Acoustic Receivers Data

Regional Nodes and Partner Organizations

ATN DAC

ATN data & Products

Scientific Research
Operational Forecasting Systems
Education, Training and Public Interest
Emergency Response

DATA CENTER (NECI) (Archive data)

NOAA
1. datacenter_attributes
2. project_attributes
3. manmade_platforms
4. receivers
5. recover_offloads
6. tag_releases
7. animals
8. detections
9. tracks
AAT Observations System Design – Service Connections. Access to all data via ERDDAP: RDBMS > netCDF files (CDM) > ERDDAP.
What is ERDDAP?

Solves problem of different communities using different services.

ERDDAP acts as a middleman.

You can use your favorite client to get data from many sources.

You can get data into many common programs and file types.

ERDDAP > List of All Datasets

Also web accessible (WAF) ISO 9115-2 and FDGC .xml discovery metadata files
http://oceanview.pfeg.noaa.gov/ATN/

- 48 different species (sharks, sea turtles, seals, whales, tuna, squid and other taxa)
- Years: 2000-2015
- 7 tag types or platforms
- Real time reporting – e-seals and sharks.
- Data in GTS -- WMO code-Q9900....
Ano Nuevo Island

The northern VR4 Global monitor at Ano Nuevo Island sits in the area known for the majority of observed white shark predation events on seals. This was our first real-time VR4 permanent mooring. Read more.
Reduce Bycatch of Loggerhead Turtles in Hawaii in Longline Fishery

avoid fishing between solid black 63.5°F and 65.5°F lines
to reduce turtle interactions

Sea Surface Temperature: 19Feb2011-21Feb2011
Ocean Currents: 10Feb2011-16Feb2011

Image Created February 22, 2011 04:00AM HST by EAH. Next projected image date: February 23, 2011 04:00AM HST

http://sos.noaa.gov/Datasets/dataset.php?id=181#
Closing Remarks

Backwards ....
Defining the specifications was hardest part. Creating and refining a specific data feed was relatively easy. The demonstration services have been implemented and appear useful.

Forwards ...
• Continue integrating ATN data and explore ways to visualize complex data.
• Develop work plan for further collaboration to fully operationalize the system.
• Expand user base ...
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THANK YOU

https://code.google.com/p/ioostech/wiki/AnimalAcousticTelData
http://ioos.github.io/animal-telemetry/passive-acoustic/

http://oceanview.pfeg.noaa.gov/ATN/
http://www.ioos.noaa.gov/observing/animal_telemetry/welcome.html