WILDLIFE MONITORING WITH ARGOS

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WILDLIFE AND ARGOS

- Overview of the Argos system : how does it work?
- Wildlife applications with Argos
- New PTTs for Animal Tracking
- Animals & Oceanography

The Argos System

Argos is a Global Location and Data Collection System. Biologists and scientists use Argos to locate and remotely study animals anywhere on earth.

- 5 NOAA satellites
- 1 METOP satellite
- 54 Regional antennas
- 2 processing & distribution centres

Argos: Simple & Robust

- Ideal for transmissions in harsh environment

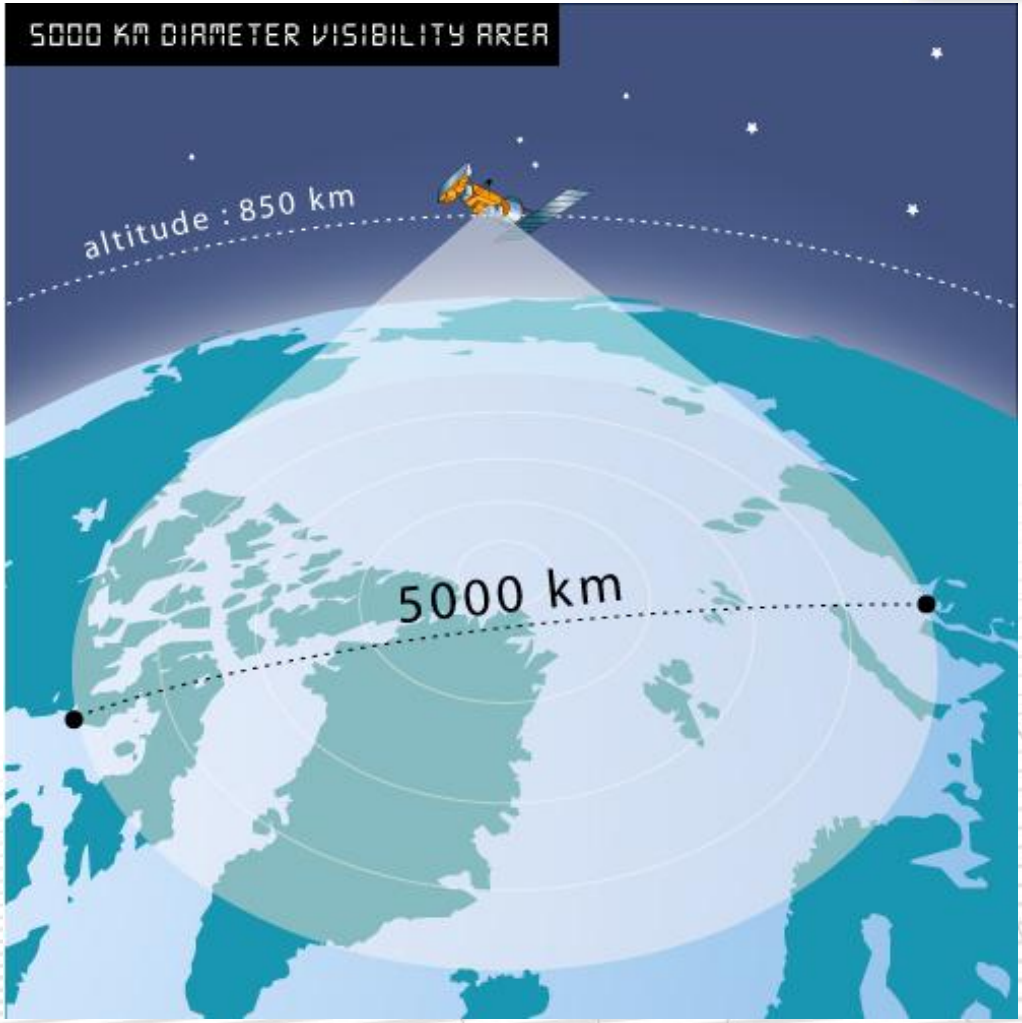
Argos: Small & Low-Power

- Low-power transmission → longer lifetime
- The smallest Argos drifter

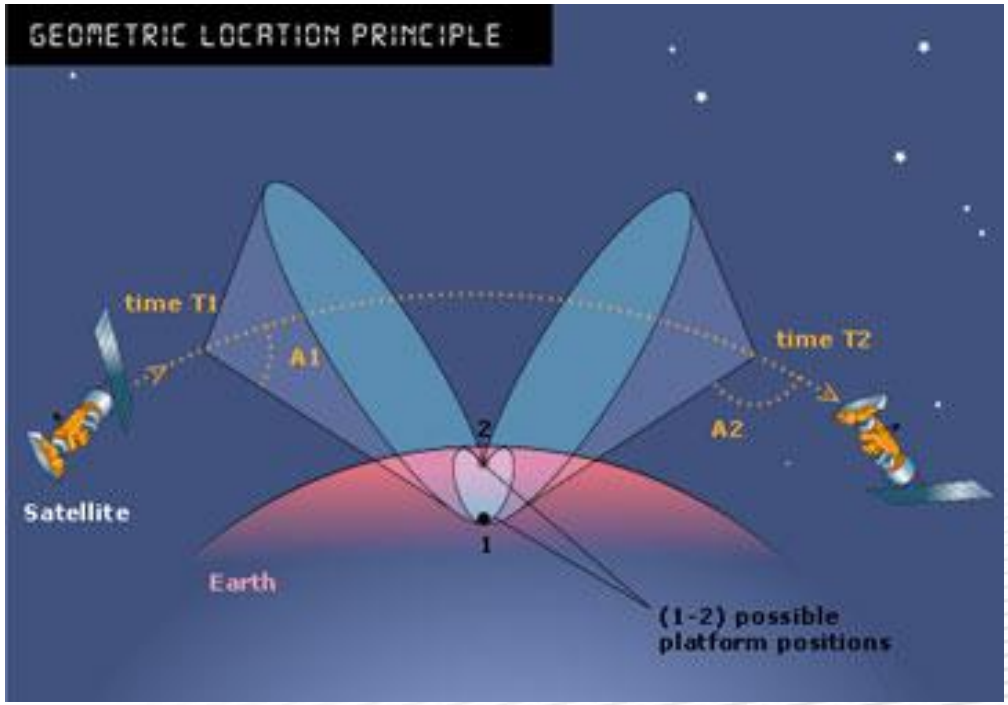
Pop-up tag on a shark
Tx 125 mW.

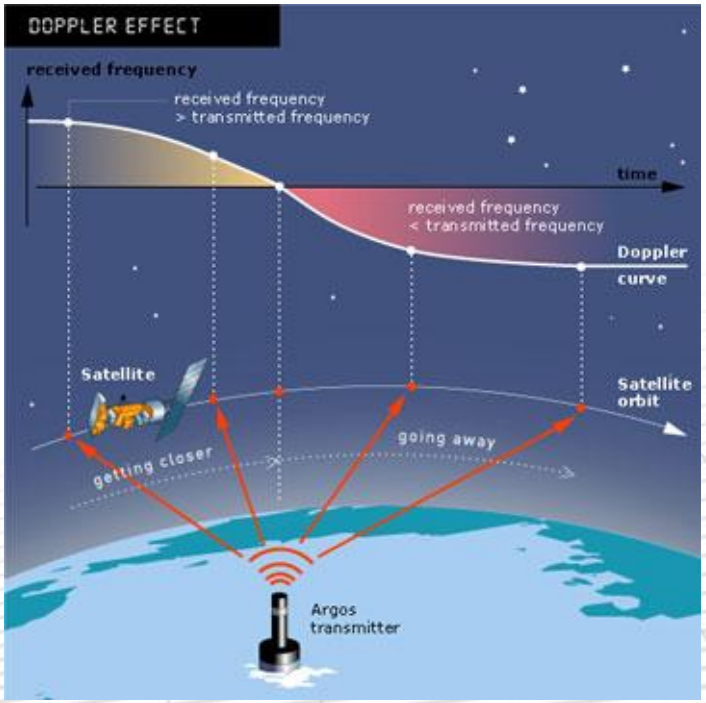
The Satellites

- Polar orbiting Satellites at ~ 850 km altitude
- 100 mn are necessary to complete 1 total orbit
- The ground visibility is 5000 km

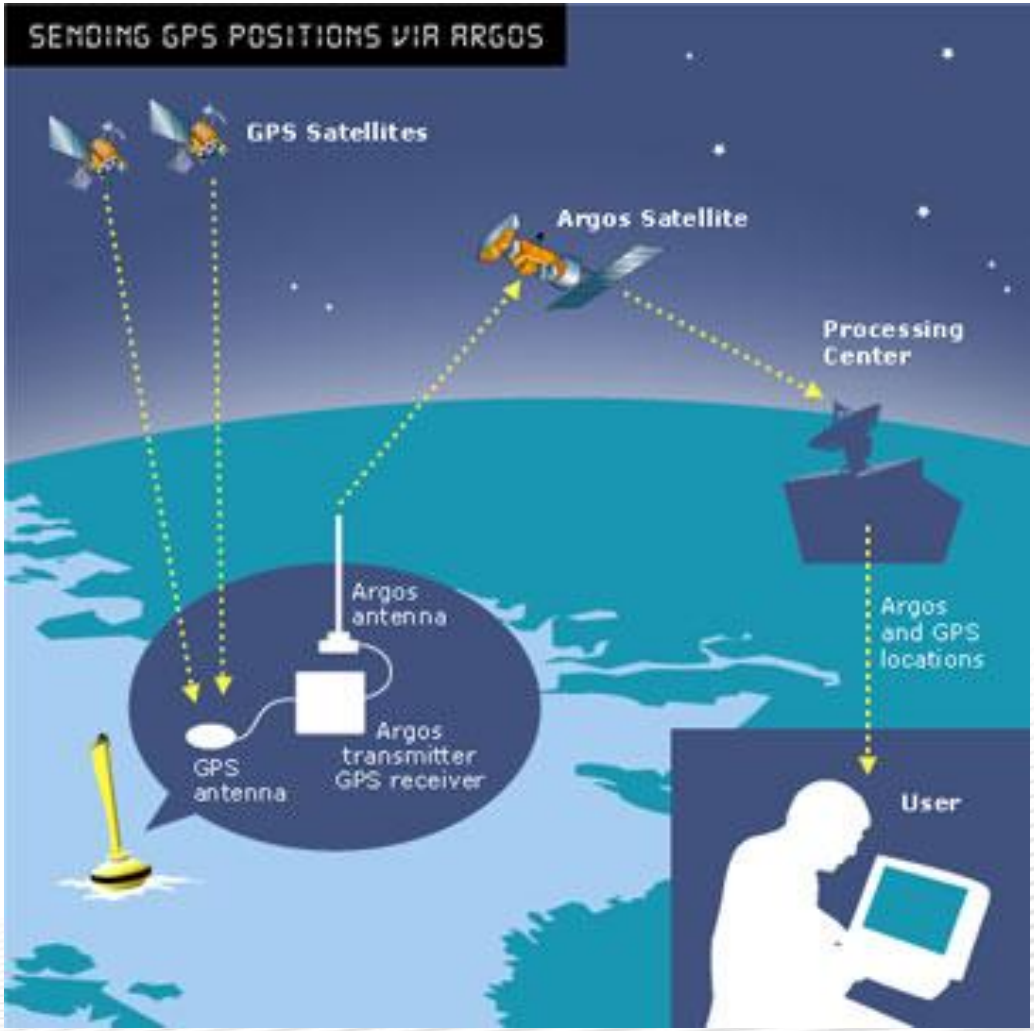


Argos Localisation based on Doppler-Fizeau effect





Argos + GPS Location



- More frecuent and accurate fixes
- GPS integrated in platform
- GPS positions sent in messages
- Decoded at CLS
- Distributed & displayed

Two Processing Centers

NORTH AMERICAN USERS

OTHER USERS

WASHINGTON PROCESSING CENTER

Internal Redundancy

FULL REDUNDANCY

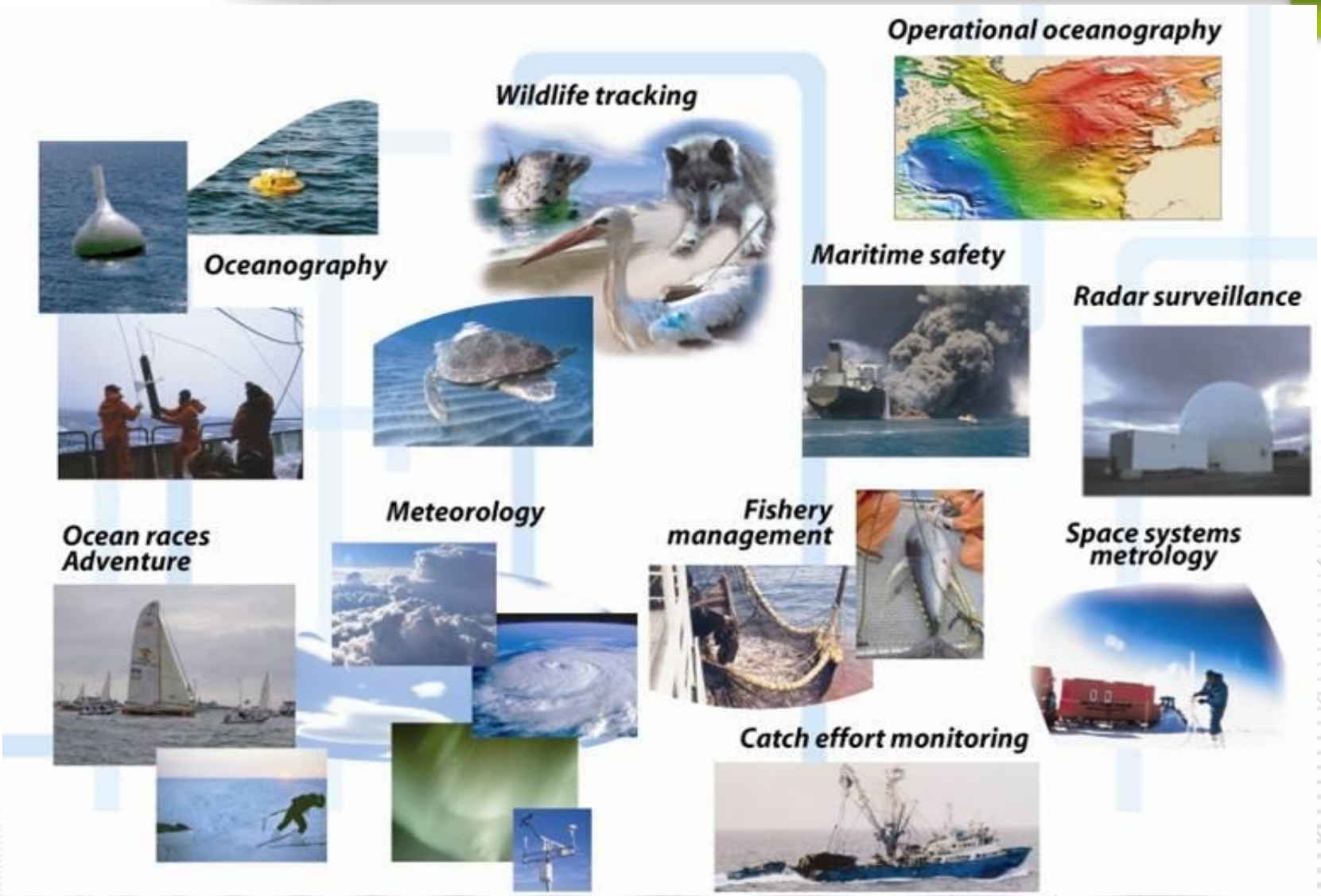
TOULOUSE PROCESSING CENTER

Internal Redundancy

ALL ARGOS DATA FROM ALL ANTENNAS

24/365 Operation

Argos Applications



BIODIVERSITY, WILDLIFE SURVEILLANCE

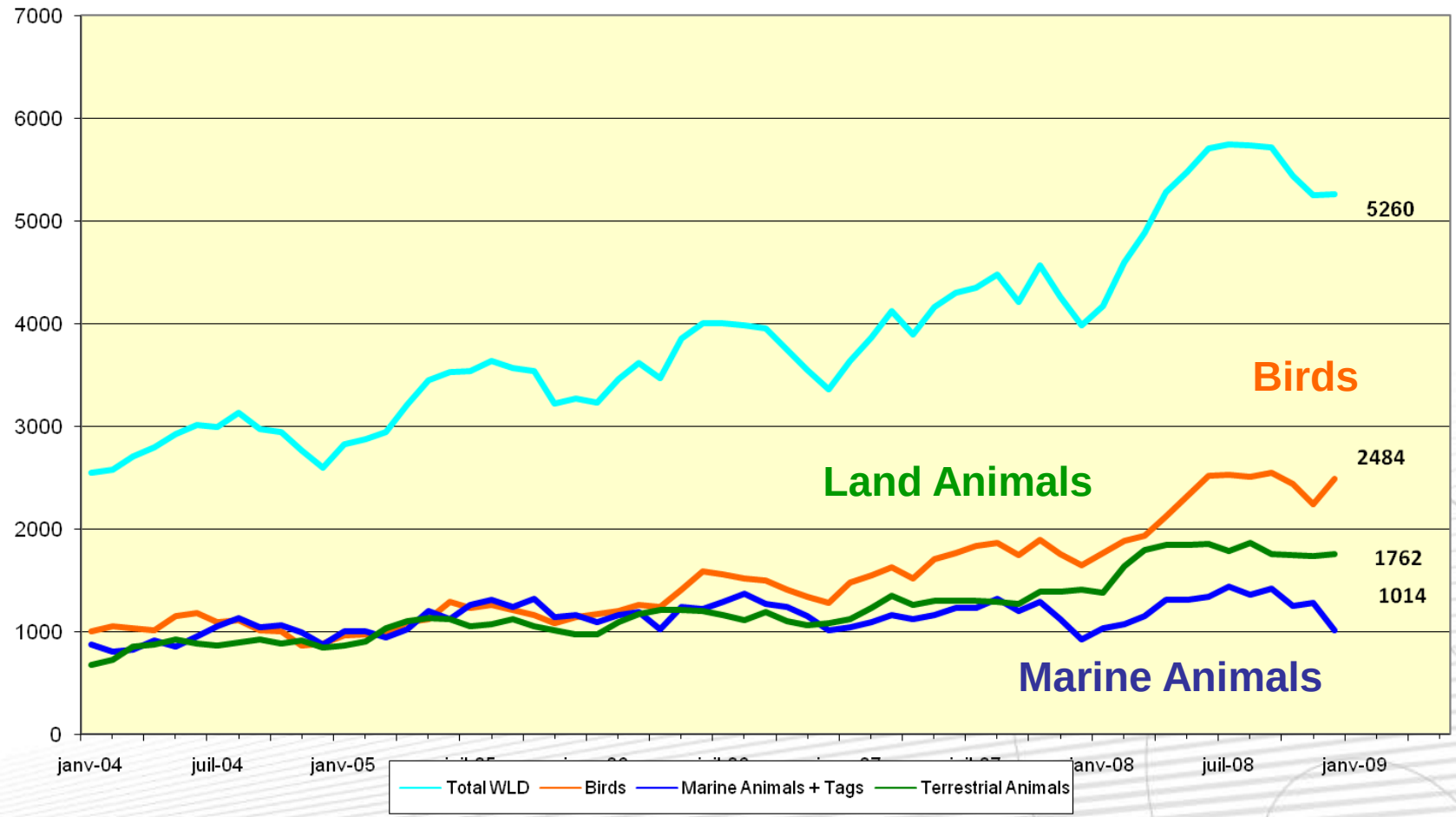
Argos is unique for the study of long distances migrations.

Argos PTTs (PlatformTransmitter Terminal) are:

- Miniaturised
- Low consumption
- Robust

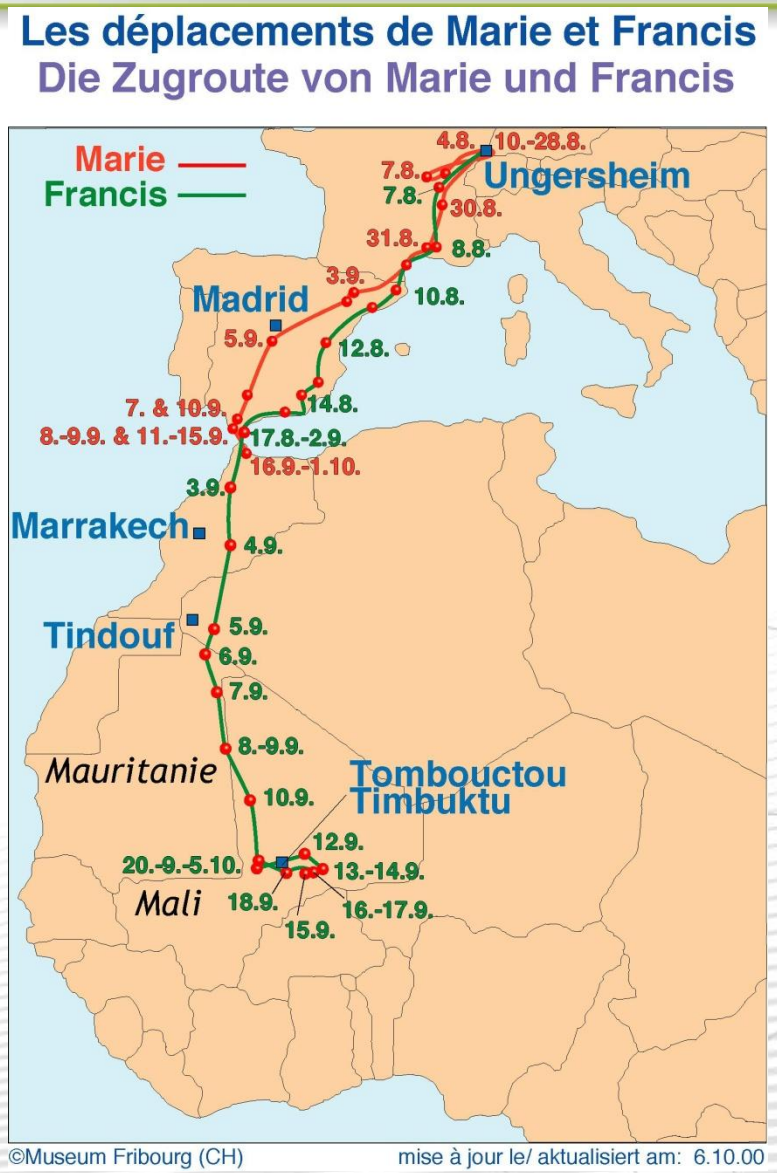
~ 6000 animals tracked in 2008

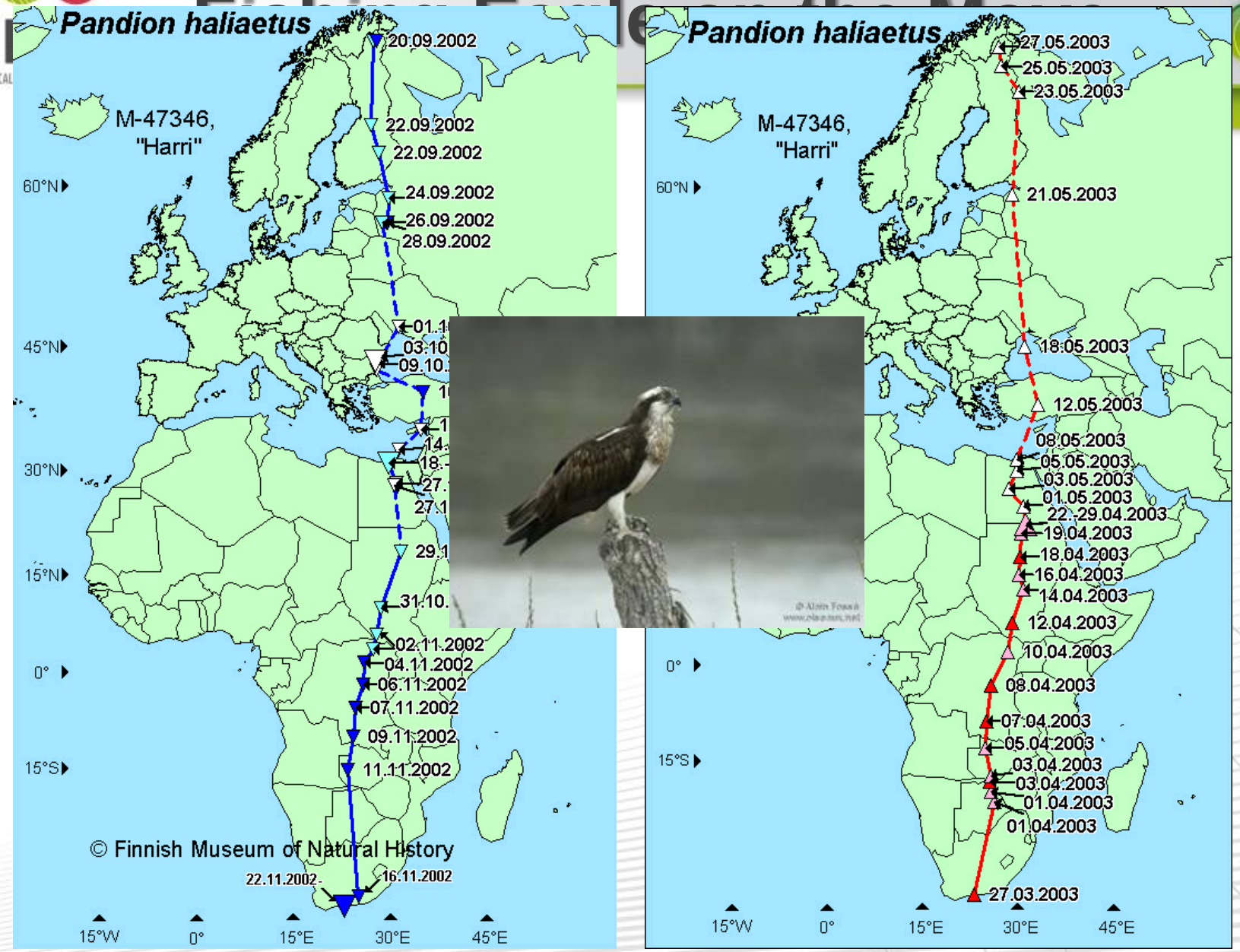
Animal Platforms Now



Bird Migration Studies

Stork Tracking





Balbuzard pêcheur

Wildlife and Health

- Birds and Emerging Diseases: Avian Influenza

- Transmission Risk and Movements of Birds from Kazakhstan

- A project with FAO

Wildlife and Health

Marabou storks in Tanzania :

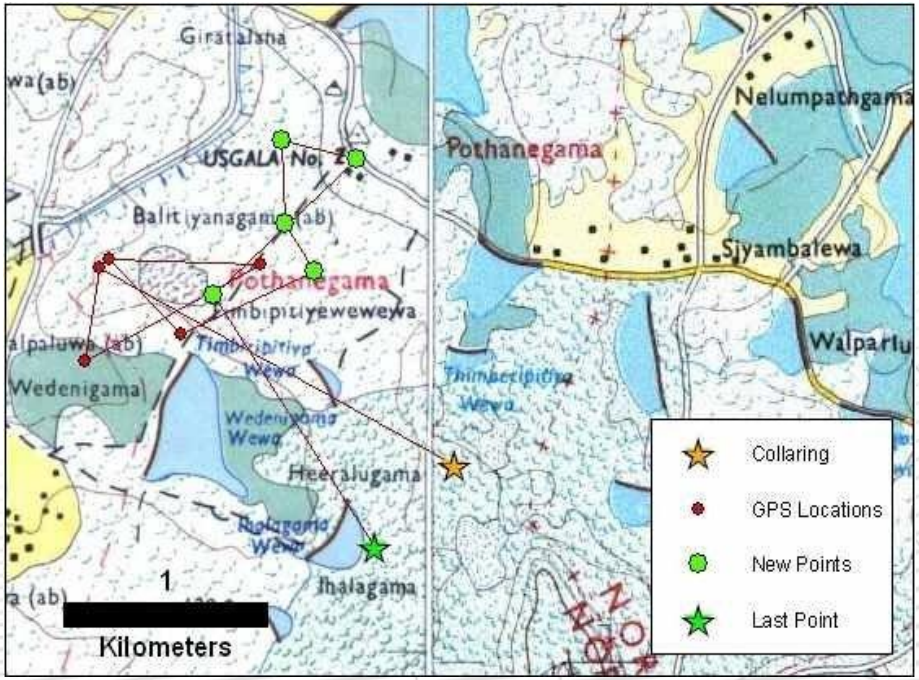
- **What disease these birds may carry ?**
- **When and where can they spread the disease ?**

Wildlife & Live Stock

Study of the movement patterns of wildlife with respect to land use types and seasonal habitat variations.

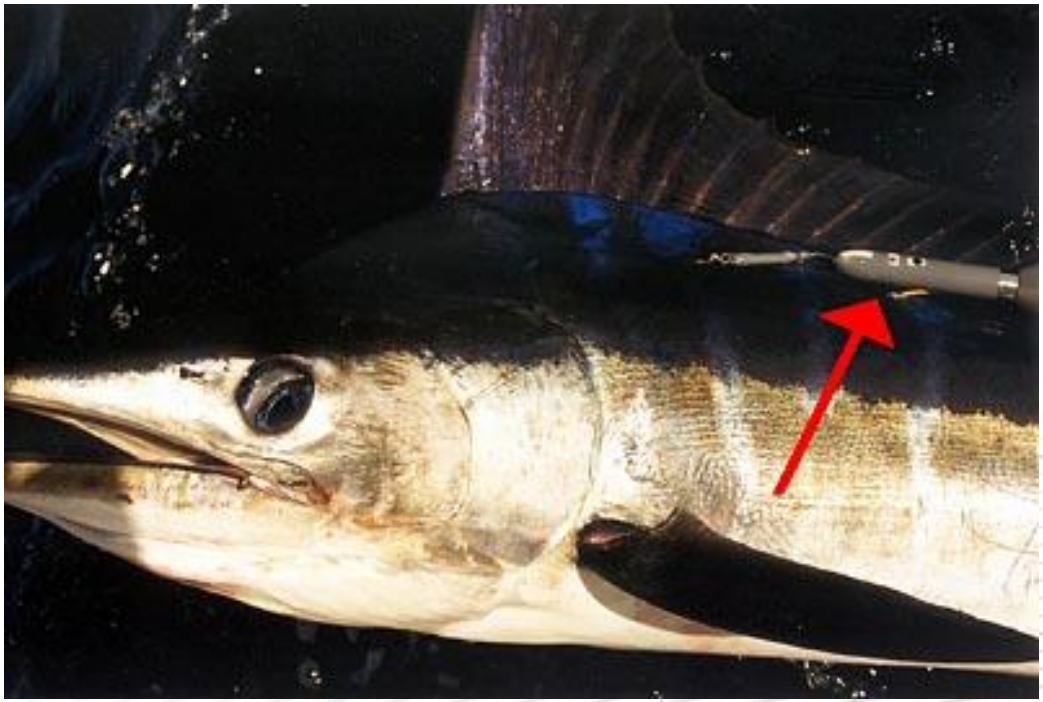
Gnou tracking in Africa

Elephant tracking in Sri Lanka



Fishes & Living Ressources

Fish Tag



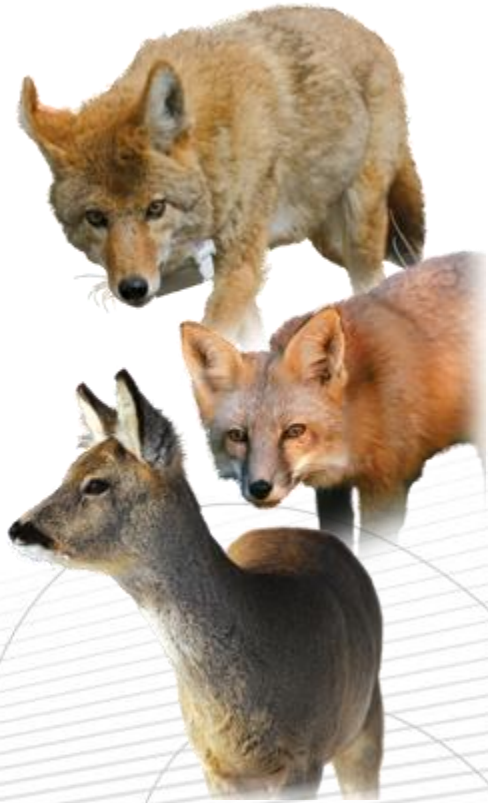
Study & Evaluation of Marine Ressource

Tuna, Swordfish, Marlin, Sharks, Heels….

Biology Study, Climate Change
Marine Animals

Seals, Sea Lions, Walrus, Turtles, Dolphins, Penguins, Whales….

New Transmitters for Land Animals



Classical collar
Argos Only

GPS collars with Store-on-board datalogging and a compact, light-weight design (190 gr) that's ideal for use on smaller animals.

New Transmitters for Birds

New!!:5 grams – Solar Pannel

9.5 grams – Solar Pannel

GPS Antenna

22 grams Solar Argos/GPS

45 grams Solar Argos/GPS

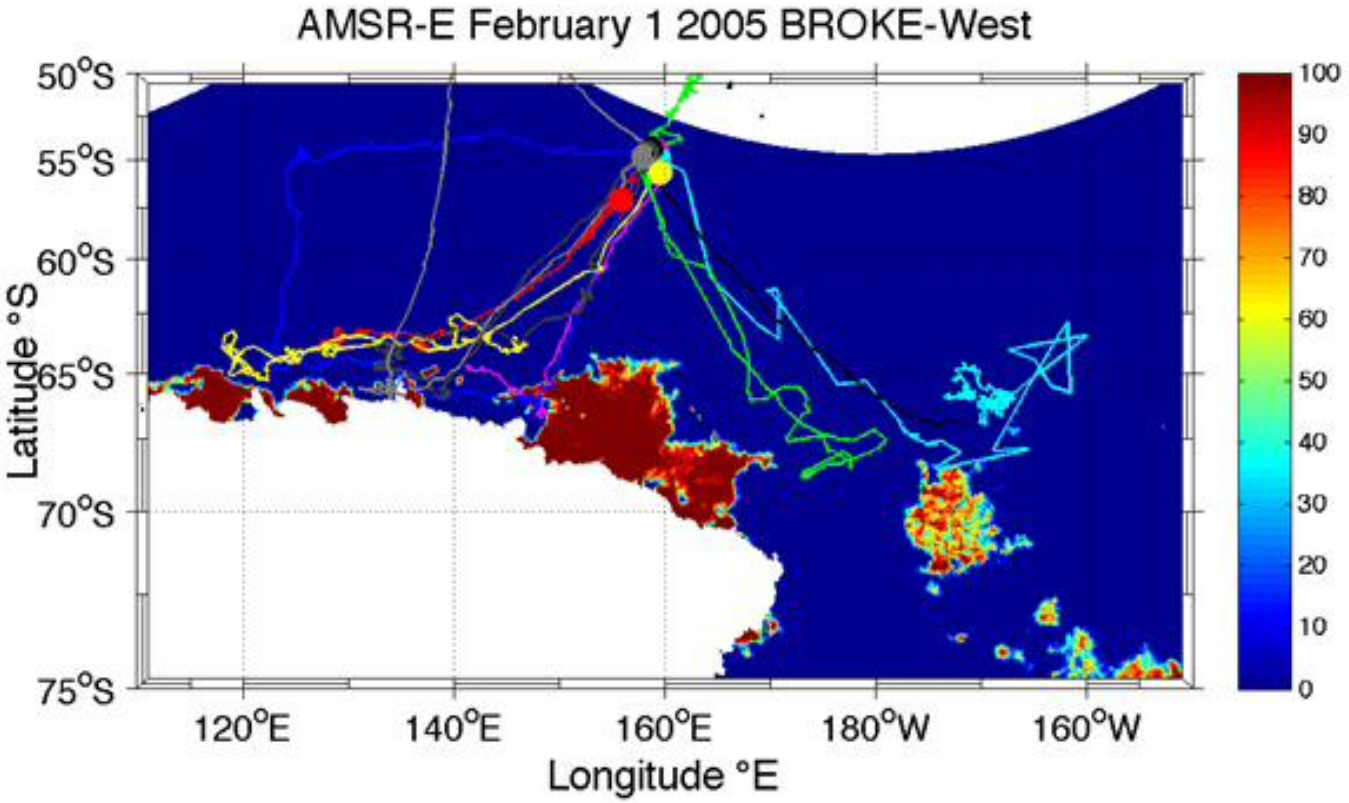
New transmitters for Fishes & Marine Animals

Fastloc GPS PTT

Fish tag, pressure,
Temperature, Light, Salinity, Depth

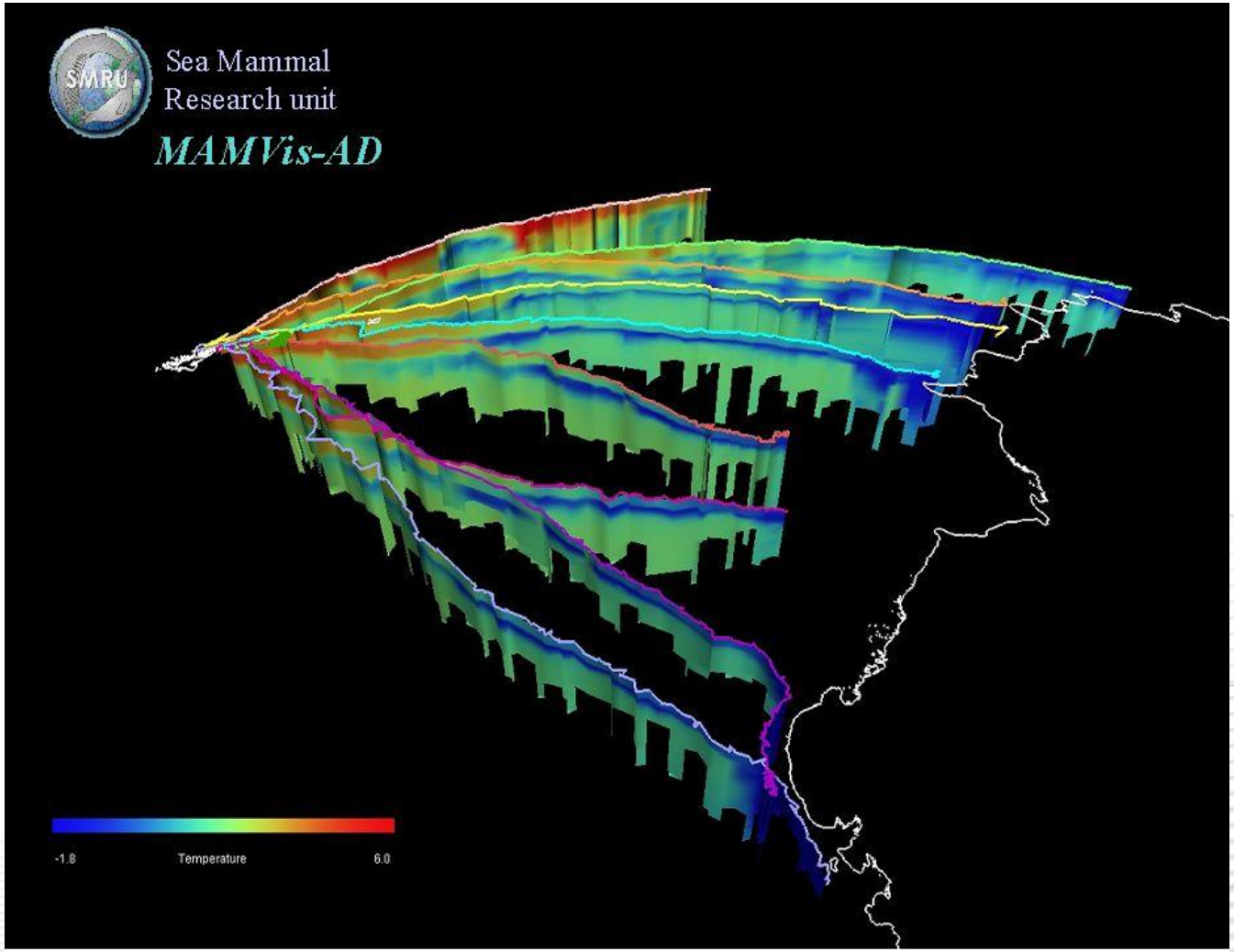
Animals & Oceanography

Seals Tracks & Ice

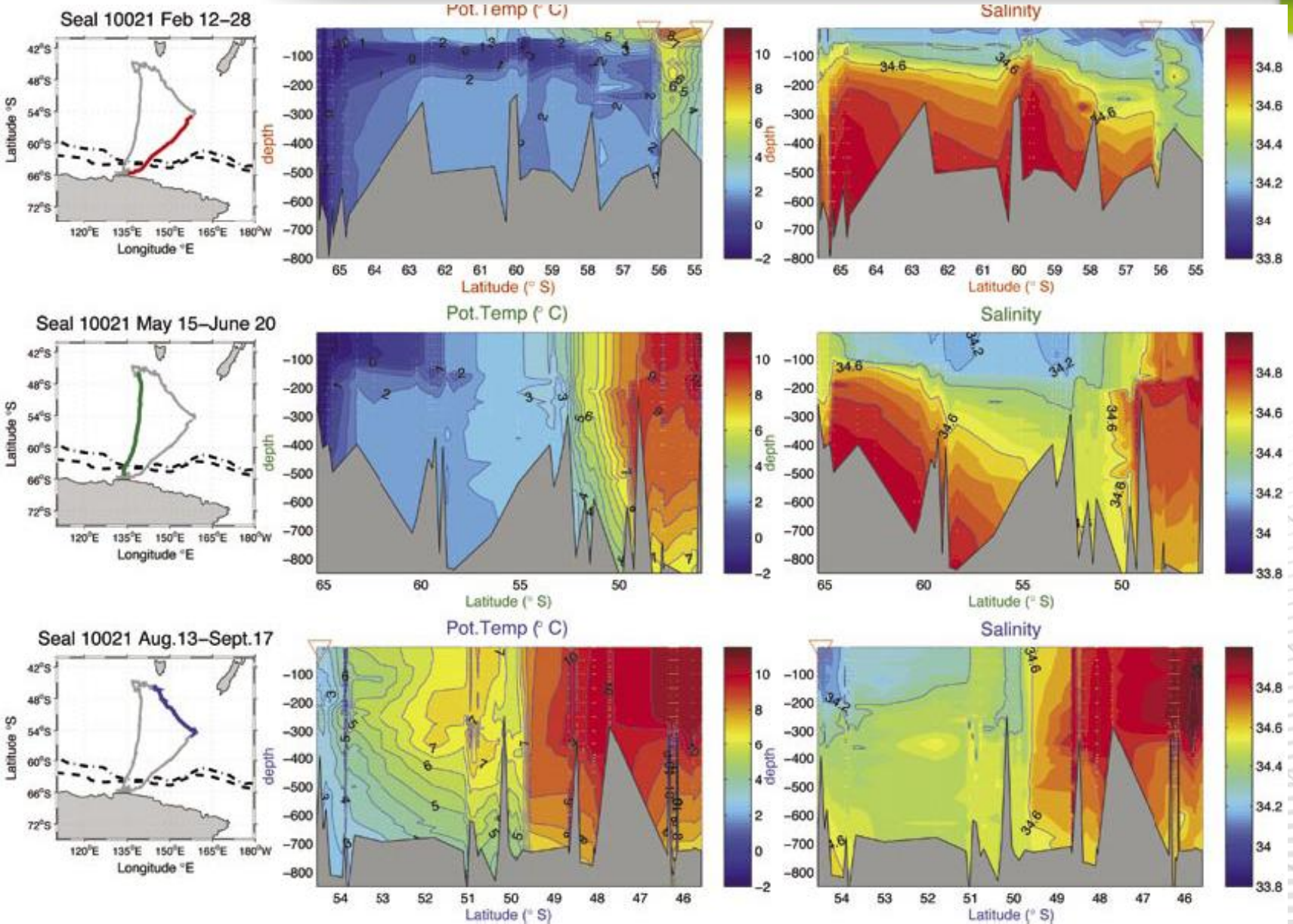


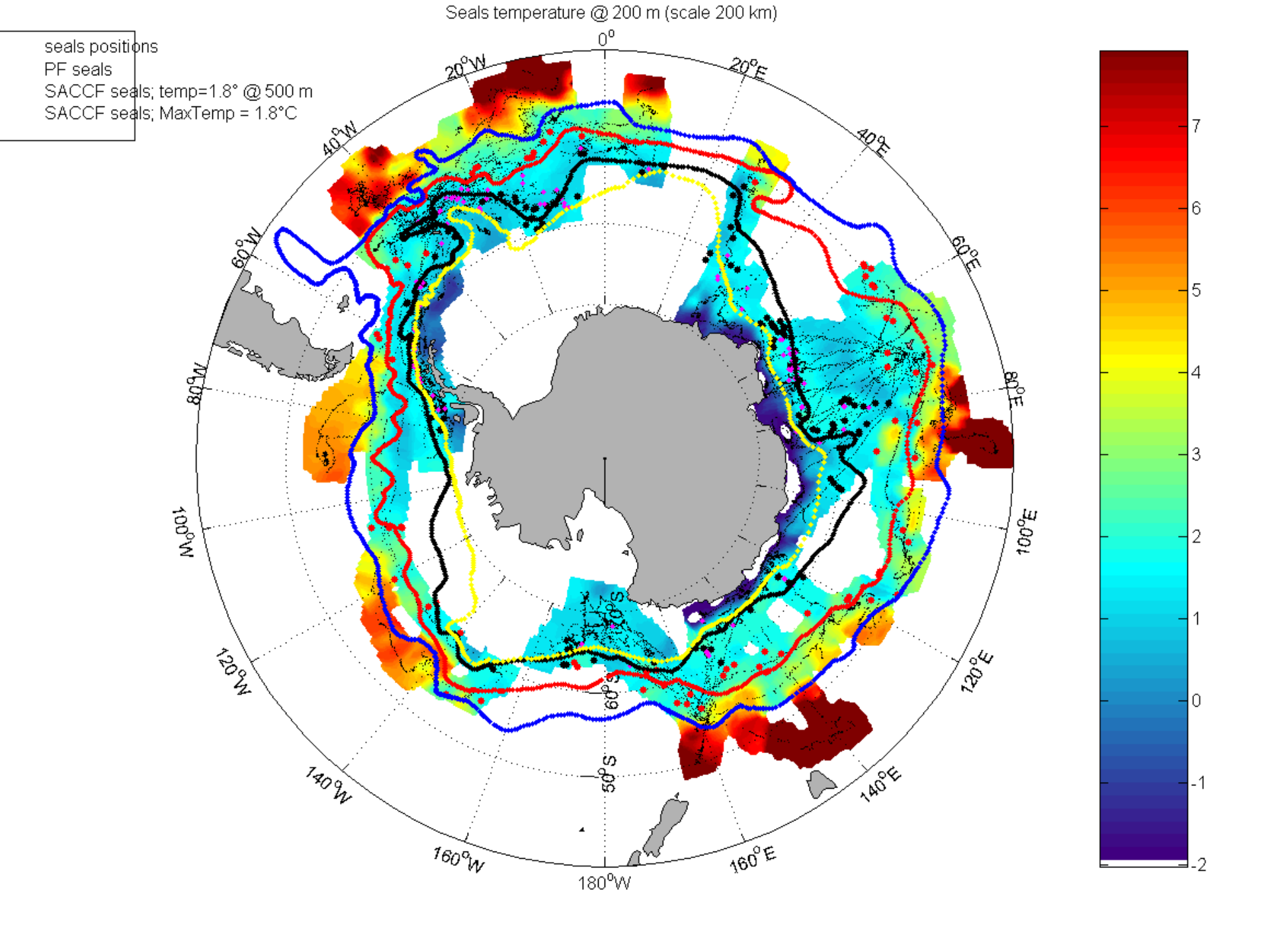
Courtesy Marc Hindell et al., Univ. Of Tasmania

Seal Tracks in 3 Dimensions!!



Temperature & Salinity profiles




Seals temperature @ 200 m (scale 200 km)
seals positions
PF seals
SACCF seals; temp=1.8° @ 500 m
SACCF seals; MaxTemp = 1.8°C
0°
20°W
20°E
40°W
40°E
60°W
60°E
80°W
80°E
100°W
100°E
120°W
120°E
140°W
140°E
160°W
160°E
180°W
50°S
60°S
7
6
5
4
3
2
1
0
-1
-2

The END

THANK YOU FOR YOUR ATTENTION