



2nd OCEAN OBSERVERS Workshop

ARGONAUTICA Educational project

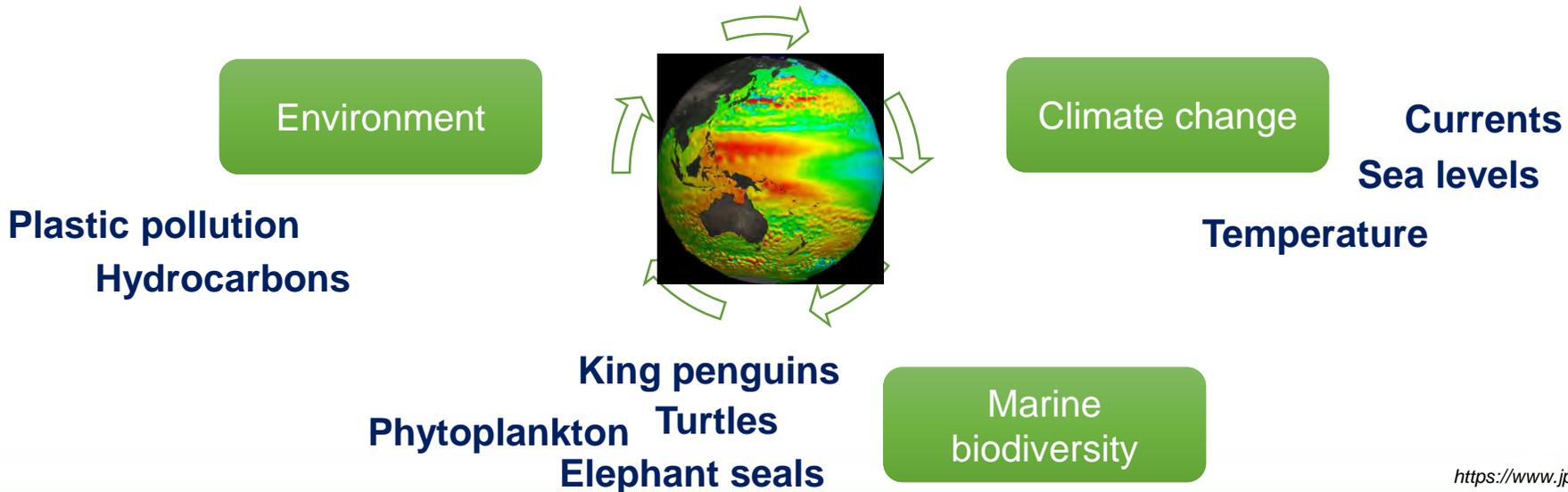
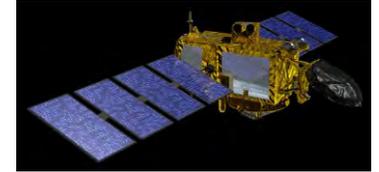
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30/11/2021

1. ARGONAUTICA

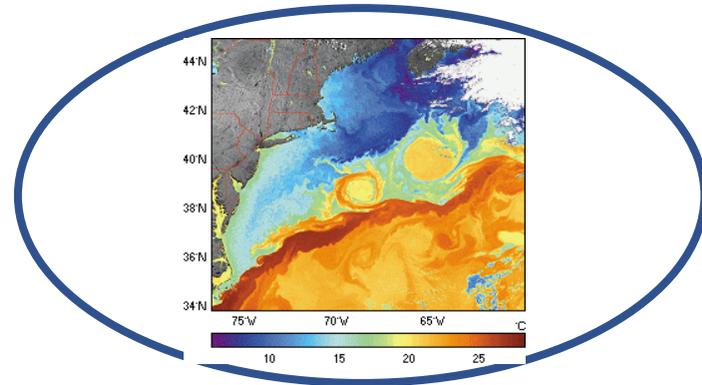
CNES educational project to study ocean using satellite data.

- Since 2000
- All levels school students
- To correlate in situ data - collected with ARGOS system- with satellites data - JASON, SENTINEL... -



1. ARGONAUTICA

CNES educational project to study ocean using satellite data.



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CNES educational project to study ocean using satellite data.



Monitoring lakes and river including technical projects
Buoys building, sensors...

Understand the links between ocean & climate
Cooperation with skippers, explorers, building buoys, sensors...



Study environmental and climatic impact on marine animals routes
Cooperation with scientists, biologists...



1. ARGONAUTICA organisation

Resources for teachers :

- Tracking data (ARGOS)
- Satellites data (JASON, ...)
- Training
- Discussions & Exchanges with scientists, sea professional, skippers...

Multidisciplinary educational content :

- Geography, mathematics, graphic art, sciences, language (including exchanges with other countries), technology, ...

End of year meeting :

- School students present their class projects and share with other school students and scientists



2. ARGONAUTICA data platform

ÉLÉPHANT DE MER PACOA

Éléphant de mer (Mirounga leonina)
Balise n°196211
Début de suivi : 25/12/2015
Dernière semaine de localisation : 99/99/9999
Lien permanent vers les données de cette balise

Plus d'informations :

- CEBC-CNRS : éléphant de mer
- dossier pédagogique : suivre des éléphants de mer

Sélectionner une date :

Cartes du 26/01/2016

Positions Cartes

Cliquez sur les images pour les agrandir
 Télécharger toutes les images
 Visualisez les cartes avec Google Earth™

Trajet de la balise

Chlorophylle - Phytoplancton

Topographie de l'océan

Courants géostrophiques

Courants de surface

Courants de surface

From 14 to 17
« oceanographic »
map

- ✓ Tracking map
- ✓ Defined area
- ✓ Polar projection possible

Température à la surface mesurée par satellite

Vents à la surface

Température Mercator à la surface

Salinité Mercator

Zone de la balise

Topographie océanique moyenne

Bathymétrie

Bathymétrie (contours)

Concentration de glace Mercator

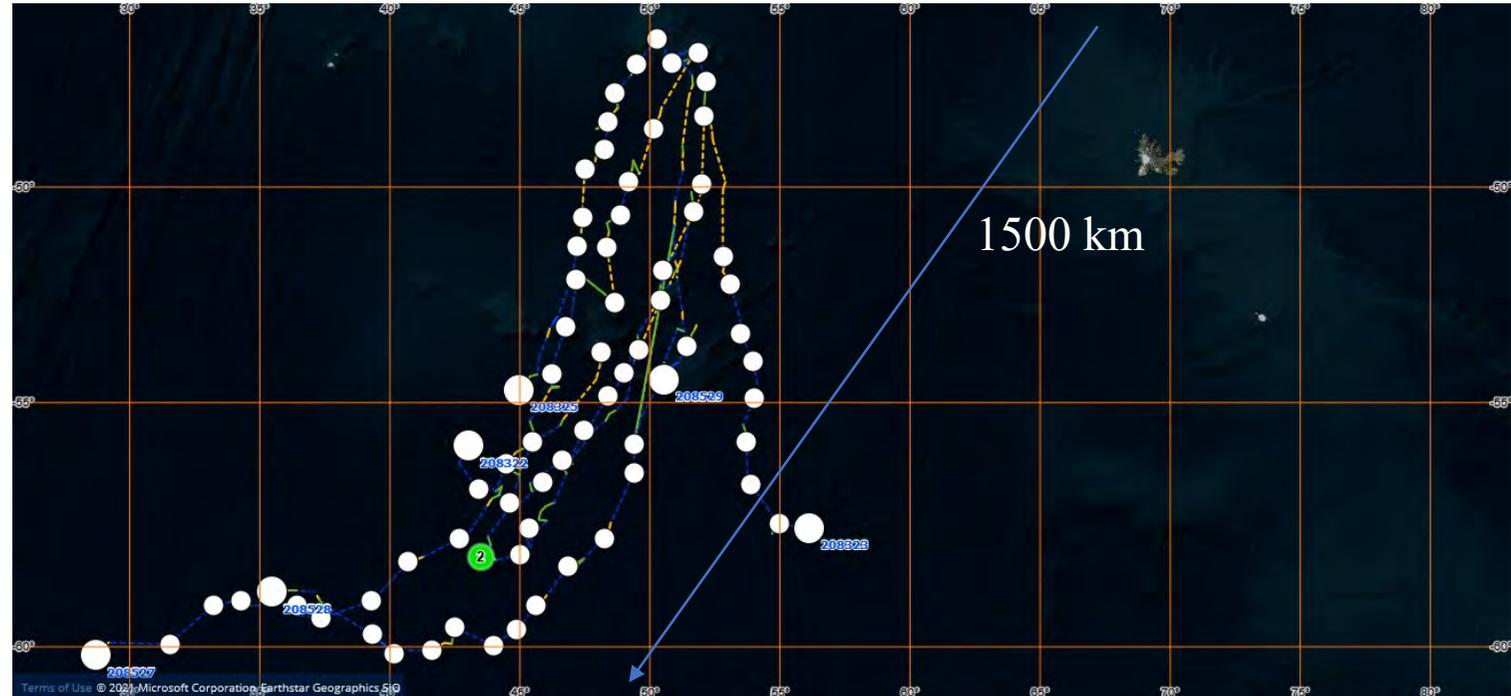
Épaisseur de glace Mercator

Derive de glace Mercator

Crédit : C. Guinet

3. Argonimaux examples : King penguins in Southern Ocean

8 king penguins followed by « Splash » Argos tag during southern winter



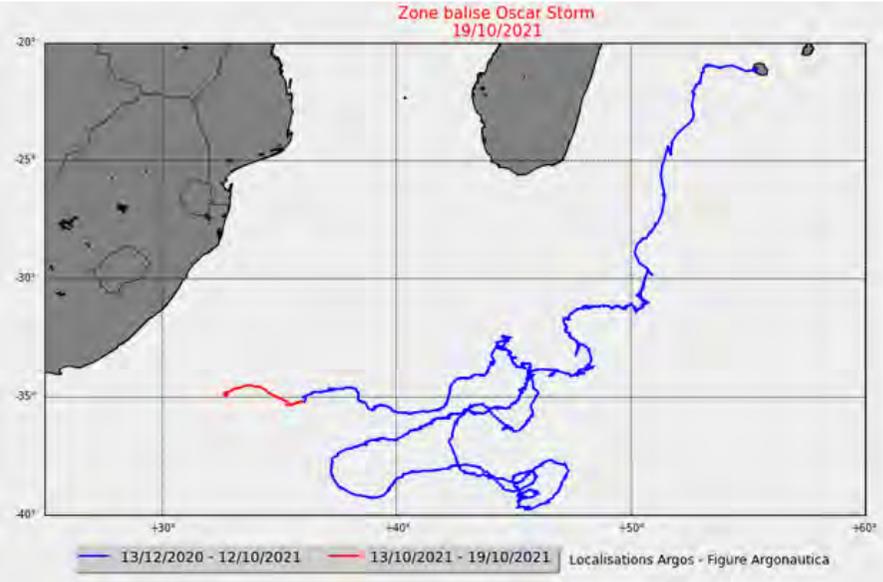
3. Argonimaux exemples : Investigate (« Menez l'enquête ») !



Since 6 months, Oscar Storm loggerhead sea turtle has been staying at the same latitudes for 6 months, Madagascar south, in the middle of the ocean.

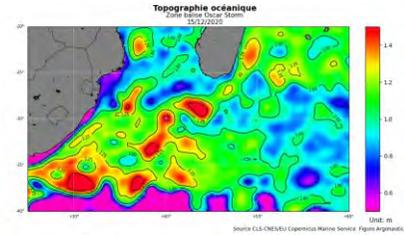


→ Tracking map



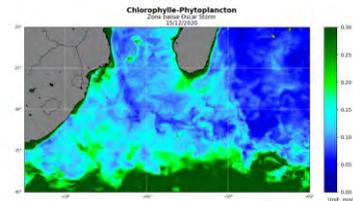
→ Topography/ Ocean current

→ Does she follow a strong current, or does she goes around a storm or vortex ?



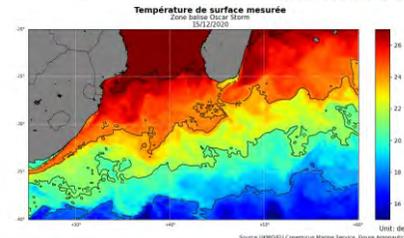
→ Chlorophyll / Phytoplankton

→ Does foraging influence its behaviour ?



→ Temperature

→ Too cold further south ?



→ Other turtles tracking map ...

3. Argonimaux exemples : Natural history museum cooperation



Turtles and pollution for school students

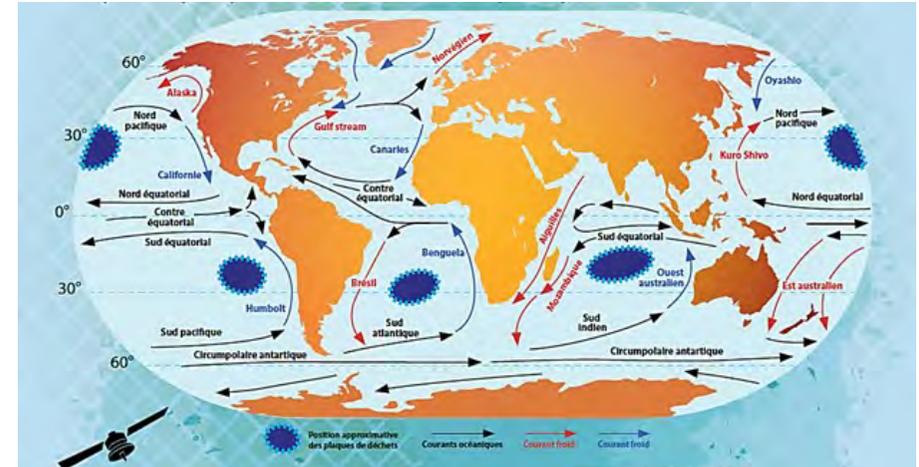
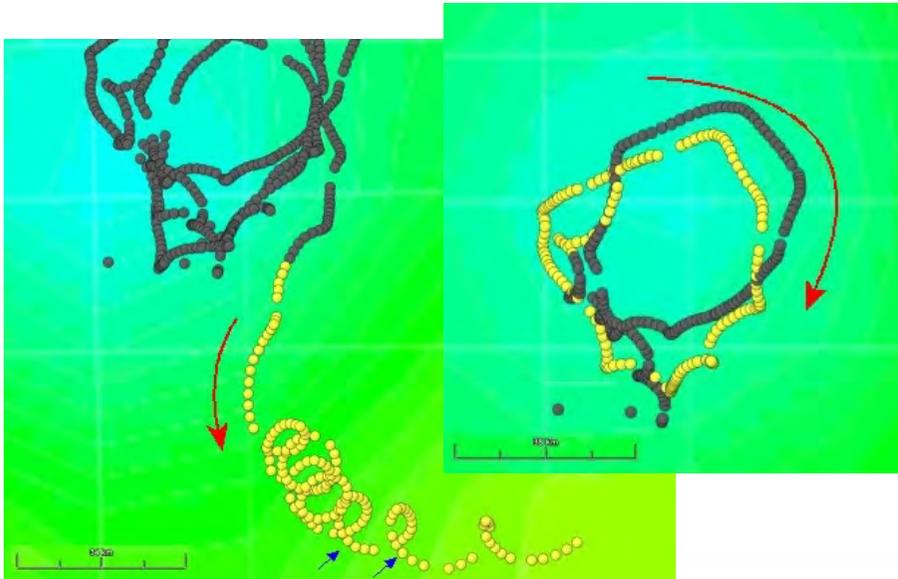
- **To begin :**
 - Half day of teachers training at CNES.
 - Half day at the museum with workshops to discover turtles, turtles tracking, and how they suffer ocean pollution
- **To continued :** Webinar with scientists
- **And finally :** Half day of projects' restitution at the end of the year (vidéos, présentations, games, dance ...)



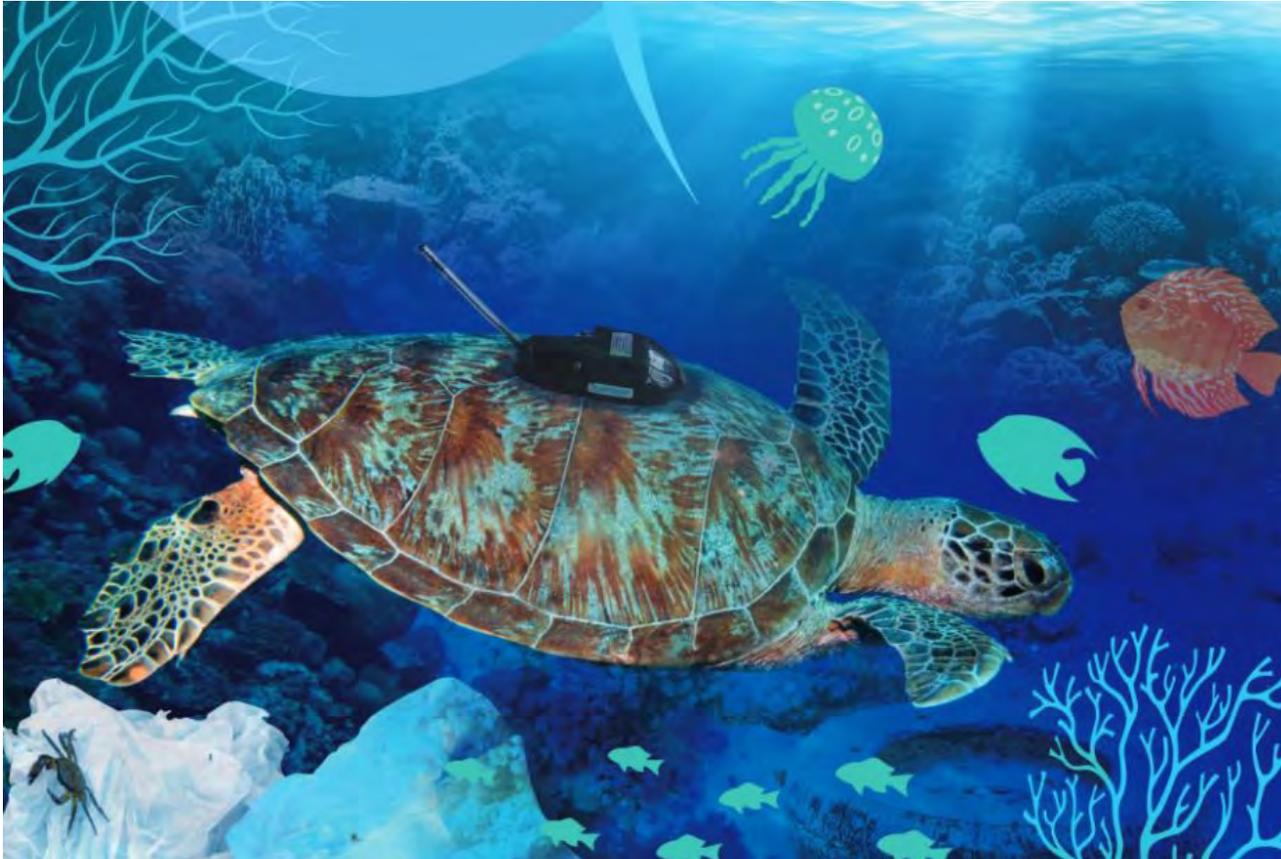
3. ArgOcean examples

- **Coriolis & wind effect on buoys**
→ Follow « *La fille de l'Atlantique* » buoy (southern hemisphere) dropped by skippers during Vendée Globe

- **Understand how plastic wastes can have same behaviour than buoys and become « plastic island » or « plastic soup »**
→ Satellites global view of ocean gyres



CNES ARGONAUTICA



**Thank you for your
attention**

Any Questions ?

**[https://enseignants-
mediateurs.cnes.fr/fr/proj
ets/argonautica](https://enseignants-mediateurs.cnes.fr/fr/projets/argonautica)**