

## 03. Argos beacons: emergency rescue for sailors

Raphaëla Le Gouvello Education packet - Windsurfing solo across the Indian Ocean

<http://www.respectocean.com>



### Technologies



Argos is a **satellite** data collection and geo-location system. It can be used to locate transmitters (beacons) anywhere on the Earth's surface to within a position accuracy of +/- 150 meters (approx. 500 feet). Each beacon has a unique identification number and constantly emits its own signal.

In emergency situations, Raphaëla can get out the beacon attached to the inside of her sailboard and fasten it securely to the vessel, so it can stay afloat while she activates the "distress" signal.

Argos picks up this signal and alerts the entire team - and the entire world - that she needs help.

But time is of the essence: the signal lasts only two or three days!

### Activities

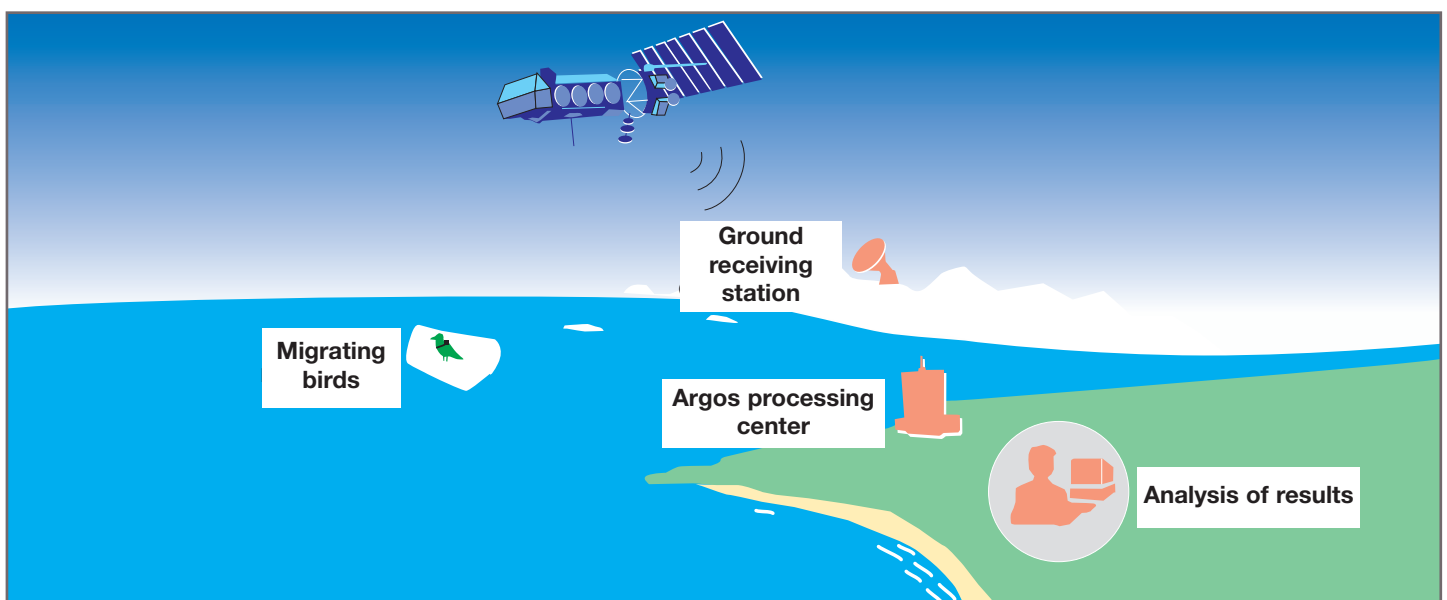
► On the picture, trace the path of the message sent by the beacon using arrows to link the various stages.

► Look up information on the Leatherback turtle (description, habitat, diet, etc.). Using an atlas, locate its main known breeding locations around the Atlantic: Panama, Suriname, Guyana and Gabon.

### How it works

Different satellites orbit the Earth at approximately 850 km (528 miles). They detect all of the beacons located within a "watch circle" 5,000 kilometers (3,105 miles) in diameter.

Ground receiving stations receive the data from the satellites. Processing centers calculate the locations and distribute the results to users.



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### Question

Can you name at least three risks faced by Leatherback turtles on the beach or at sea?

### Other uses

Used with other instruments, the Argos beacon can transmit various measurements such as temperature, sea level, and current speeds.

It has proved helpful in numerous applications: oceanography, equipment monitoring during transport of hazardous materials, fishing, meteorology, vulcanology, oil spills, etc.

Thanks to the miniaturization of electronics, Argos beacons have become smaller and lighter.

Biologists also have used this system to study the migration and biology of many animals in their natural habitats, on land, sea, and in the air.



### The Leatherback Turtle, Argos beacons on their backs

Due to over-harvesting of their eggs and killing of these turtles for the oil contained in their fat, the Leatherback turtle is now an endangered species.

The Leatherback's population worldwide dropped from 115,000 in 1980 to less than 30,000 females in 1996.

Nesting locations in French Guiana decreased from 50,000 in 1992 to less than 10,000 in 2000.

Although now protected, the Leatherback turtle is still accidentally killed by fishing nets.

To study their migratory routes, scientists have installed Argos beacons on the backs of Leatherbacks to follow their day-to-day movements.