In situ data acquisition for Earth observation and cloud detection models validation

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Abstract
The talk is in two parts.

PART I
Derelict fishing nets, either lost or abandoned, threaten fish, birds, sea turtles, corals, and marine mammals in the open ocean. The talk will present some of the activities carried out by NOAA aiming at protecting the Hawaiian coral reef from the damages produced by floating nets and marine debris in general. The earth observation techniques will be described that, through remote sensing technologies and earth surveys, have led to identify the North Pacific Convergence Zone: 6,000-mile marine litter "corridor" which connects two separate accumulations of garbage known as the Eastern and Western Garbage Patch. Among others, radiometric satellite images have been considered as they provide a straightforward visual overview of the cloud free areas. Nevertheless, to use them operationally, cloud detection techniques have to be applied.

PART II
The second part of the talk will present a NASA outreach project aimed at collecting part of the in situ data needed to validate the cloud detection models applied to distinguish between cloudy and non-cloudy pixels in radiometric images. One of the issues to be addressed is that clouds can be confused with snow due to their colour and the pixel values. The activities described involve a large number of schools around the world in a massive field campaign. The impact on the development of educational activities will be analysed and a sample exercise offered.