

# Corals



Corals © Envato



Coral reefs are under threat: half of them are thought to be in a critical condition. Increased coastal development, chemical pollution, overfishing, ocean acidification and rising sea temperatures causing corals to bleach are the main culprits doing the damage.

Earth-observation satellites like Pleiades with their high-resolution optical sensing instruments and others with ocean colour instruments are delivering vital data to help scientists understand what's driving the decline of coral reefs, by locating shallow reefs, tracking them over time and gauging the effects of human pressures.

Today, we're beginning to realize just how important altimetry satellites are. For example, during the El Niño episode in late 2015, the Jason satellite showed that parts of Indonesia's barrier reefs had become exposed due to falling sea level, thus accelerating their decline. The correlation between measured sea surface height, water temperature and zones affected by bleaching is clearly a key parameter for investigation, but altimetry data are currently hard to obtain from coastal zones. The future SWOT satellite will get round this problem. With its resolution and two-dimensional vision, SWOT will cover coasts to yield valuable information about the dynamics of the fine-scale currents and tides around reefs. These movements of water that are still poorly understood play a key role in transporting coral larvae, replenishing reefs and protecting them, notably by keeping down the temperature of lagoon waters.



It's hoped that data from SWOT will provide closer insight into this circulation and help scientists to model how coral reef zones work while attempting to mitigate the decline of these vital havens for marine biodiversity.