



Marine Habitat Properties

ESSENTIAL CLIMATE VARIABLE (ECV) FACTSHEET



GLOBAL CLIMATE OBSERVING SYSTEM
KEEPING WATCH OVER OUR CLIMATE



ECV IN BRIEF

- Domain:** Ocean
- Subdomain:** Biological/Ecosystems
- Scientific Area:** Biosphere
- Products:** Coral Reefs
Mangrove Forests
Seagrass Beds
Macroalgal Communities



Marine Habitat Properties

Marine coastal regions are amongst the most productive systems of the planet, yet they are undergoing rapid transformations in response to intensifying human activities and global change. Regime shifts, abrupt transitions between alternative states, are increasingly observed in a wide range of coastal systems, including coral reefs, macroalgal forests, seagrasses and mangroves. These non-linear responses to deteriorating environmental conditions often result in considerable loss of ecosystem functions and services.

ECV Product¹

PRODUCT	DEFINITION	REQUIREMENTS				
		FREQUENCY	RESOLUTION	REQUIRED MEASUREMENT UNCERTAINTY	STABILITY	STANDARDS/ REFERENCES
CORAL REEFS	Cover: live cover (% / m ²) Composition: % coverage per species / m ²	Requirements under assessment by GOOS Biology & Ecosystems Panel (as of 2018)				
MANGROVE FORESTS	Cover: live cover (% / m ²) Composition: % coverage per species / m ²	Requirements under assessment by GOOS Biology & Ecosystems Panel (as of 2018)				
SEAGRASS BEDS	Cover: live cover (% / m ²) Composition: % coverage per species / m ²	Requirements under assessment by GOOS Biology & Ecosystems Panel (as of 2018)				
MACROALGAL COMMUNITIES	Cover: live cover (% / m ²) Composition: % coverage per species / m ²	Requirements under assessment by GOOS Biology & Ecosystems Panel (as of 2018)				

¹ Current Products and Requirements as in the Implementation Plan 2016 (GCOS-200). GCOS is reviewing and will update the requirements until 2022. More information on: gcos.wmo.int and climatedata.wmo.int.



Data Sources²

- ▶ Global Coral Reef Monitoring Network (GCRMN)
<https://my.usgs.gov/gcmp/program/show/936502>
- ▶ Australian Institute of Marine Science (AIMS)
<https://www.aims.gov.au/docs/data/data.html>
- ▶ Ocean Biogeographic Information System (OBIS)
www.iobis.org

World Map Mangrove Distribution



Reference: Giri, C., Z. Zhu, L.L. Tieszen, A. Singh, S. Gillette and J.A. Kelmelis. 2008. Mangrove forest distribution and dynamics (1975-2005) of the tsunami-affected region of Asia. *Journal of Biogeography* 35: 519-528.

² This list provides sources for openly accessible data sets with worldwide coverage for which metadata is available. It is curated by the respective GCOS ECV Steward(s). The list does not claim to be complete. Anyone with a suitable dataset who would like it to be added to this list should contact GCOS.



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