Surface Currents
ESSENTIAL CLIMATE VARIABLE (ECV) FACTSHEET

GLOBAL CLIMATE OBSERVING SYSTEM
KEEPING WATCH OVER OUR CLIMATE

WMO · IOC · International Science Council · UN environment

ECV IN BRIEF

Domain:	Ocean
Subdomain:	Physical
Scientific Area:	Physical Properties
Products:	Surface Geostrophic Current

Surface Currents

The surface ocean general circulation is responsible for significant surface transport of heat, salt, passive tracers and ocean pollutants. On basin scales, surface currents and their variations are a major player in climate to weather fluctuations. The boundary currents on each side of the ocean basins transport significant amounts of heat, salt and passive tracers. Western Boundary Currents in particular transport heat and properties polwards, moderating climate. Convergences/divergences, spiralling eddies, and filaments all contribute to vertical motions and mass exchange. Surface currents impact the steepness of surface waves, and are thus important for generating accurate marine sea state forecasts.

ECV Product[1]

PRODUCT	DEFINITION	REQUIREMENTS				
		FREQ.	RESOLUTION	REQUIRED MEASUREMENT UNCERTAINTY	STABILITY	STANDARDS/ REFERENCES
SURFACE GEOSTROPHIC CURRENT	Ocean Vector motion measured at or near the surface (at stated depth)	Hourly to weekly	1-10km	0.02m/s	Not specified	See EOV Specification at www.goosocean.org/eov

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[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.
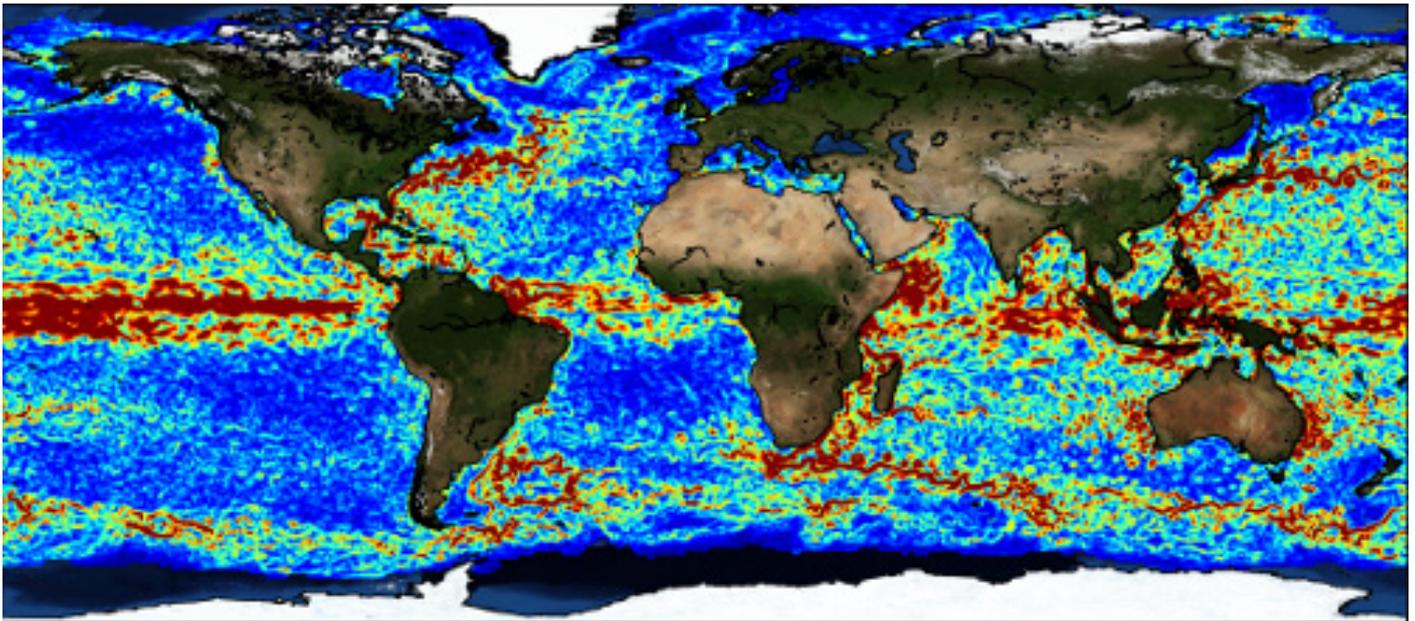
Surface Geostrophic Currents

Figure: Globcurrent merged global ocean gridded absolute geostrophic velocities from SSALTO/DUACS AVISO L4 Product on 0.1 degree resolution geographic grid.

Source: www.globcurrent.ifremer.fr

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