

CID Type: **Wet and Dry**
 CID Category: **Fire Weather**

Definition: Weather conditions conducive to triggering and sustaining wildfires, usually based on a set of indicators and combinations of indicators including temperature, soil moisture, humidity and wind. Fire weather does not include the presence or absence of fuel load. Note: distinct from wildfire occurrence and area burned.

CID: Fire Weather	Relevant ECV(s)	ECVs products	Current requirements				Higher Resolution Needed			
			spatial resolution (horizontal)	spatial resolution (vertical)	temporal resolution	timeliness	spatial resolution (horizontal)	spatial resolution (vertical)	temporal	timeliness
AOPC	Precipitation	accumulated precipitation	50km	N/A	1 d	1 d	Y			
	Surface wind speed and direction	Wind Direction (near surface)	10 km	N/A	<1 h	6 h				
		Wind Speed (near surface)	10 km	N/A	<1 h	6 h				
	Surface water vapor	relative humidity near surface	10 km	N/A	< 1 h	6h				
	Upper-air temperature	atmospheric temperature in boundary layer	15 km	1 m	< 1 h	1h	Y? (to resolve PyCu convection)			
	Upper-air water vapour	relative humidity in boundary layer	15 km	1 m	<1 h	1 h	Y? (to resolve PyCu convection, ideally below 1 km)		Y? (to resolve PyCu convection)	
		specific humidity in the boundary layer Water vapour mixing ratio in the upper troposphere and lower stratosphere	15 km 50 km	1 m 0.5 m	<1 h	3 h	Y? (to resolve PyCu convection, ideally below 1 km)		Y? (to resolve PyCu convection)	
Lightning	Total lightning stroke density	0.1 x 0.1 degree pixels	N/A	1 h	10 d					
TOPC	Temperature (surface)	land temperature (surface)	<1 km	N/A	<1 h	< 2 d				
	Evaporation from land	Transpiration (relevant for fire weather?)	0.1 km	N/A	1 h	1 d				
	Soil moisture	surface soil moisture root-zone soil	1 km	10 cm	6 h	3 h				
	Soil moisture	moisture	1 km	10 cm	6 h	1 week				

CID Type: Heat and Cold

CID Category: Extreme Heat

Definition: Episodic high surface air temperature events potentially exacerbated by humidity

CID: Extreme Heat	Relevant ECV(s)	ECVs products	Current requirements				Higher Resolution Needed			
			spatial resolution (horizontal)	spatial resolution (vertical)	temporal resolution	timeliness	spatial resolution (horizontal)	spatial resolution (vertical)	temporal	timeliness
AOPC	Surface radiation budget	upward long-wave irradiance at Earth surface	10 km	N/A	1h	1 month after the observation period				
		downward long-wave irradiance at Earth surface	10 km	N/A	1h	1 month after the observation period				
		downward short-wave irradiance at Earth surface	10 km	N/A	1h	1 month after the observation period				
	Earth radiation budget	downward short-wave irradiance at TOA	10 km	N/A	1h	1h				
		Radiation profile	10 km	1 km	1h	1h				
	Surface Temperature	Air temperature near surface	10 km	N/A	< 1 h	6h				
	Upper-air Temperature	Atmospheric temperature in the boundary layer	15 km	1 m	< 1 h	1h				
	Surface Water Vapour	Relative humidity near surface	10 km	N/A	< 1 h	6h				
		Dew point temperature near surface specific humidity near surface	10 km	N/A	< 1 h	6h				
	Upper-air Water Vapour	Relative humidity in the boundary layer	15 km	1 m	< 1 h	1h				
Specific humidity in the boundary layer		15 km	1 m	< 1 h	1h					
Surface Wind Speed and Direction	Wind speed near surface	10 km	N/A	< 1 h	6h					

CID Type: **Open Ocean**

CID Category: **Marine heatwave**

Definition: Episodic extreme ocean temperatures

CID:	Relevant ECV(s)	ECVs products	Current requirements				Higher Resolution Needed			
			spatial resolution (horizontal)	spatial resolution (vertical)	temporal resolution	timeliness	spatial resolution (horizontal)	spatial resolution (vertical)	temporal	timeliness
OOPC	SST	SST	5 km	N/A	1 h	3 h				
	Subsurface T	Interior T upper ocean	10 km	1 m	1 d	1 d				
		Interior T deep ocean	100 km	N/A	1 d	1 d				
		Coastal	1 km	N/A	1 h	1 d				
	SSS	Sea Surface Salinity	10 km	N/A	1 d	7 d				
	Subsurface S	Subsurface Salinity upper	10 km	1 m	1 d	1 d				
		Subsurface Salinity deep	10 km	1 m	1 d	1 d				
	Surface currents	Ekman currents	10 km	N/A	1 h	1 h				
		Surface geostrophic	10 km	N/A	6 h	1 d				
	Subsurface currents	Vertical Mixing Upper	10 km	1 km	1 d	1 d				
		Vertical Mixing Deep	10 km	10 km	1 d	1 d				
	Ocean surface stress	Ocean Surface Stress	10 km	N/A	1 h	7 d				
	Ocean surface heat flux	Radiative Heat flux	10 km	N/A	1 h	7 d				
		Sensible Heat Flux	10 km	N/A	1 h	7 d				
		Latent Heat Flux	10 km	N/A	1 h	7 d				
	Oxygen	Dissolved Oxygen concentration	300 km	N/A	30 d	6 months				
	Plankton	Phytoplankton Biomass	100 km	N/A	7 d	N/A				
	Marine Habitat Properties	Hard Coral Cover Composition	10 km	10 m	1 month	3 month				
AOPC	Surface radiation budget	upward long-wave irradiance at Earth surface	10 km	N/A	1h	1 month after the observation period				
		downward long-wave irradiance at Earth surface	10 km	N/A	1h	1 month after the observation period				
		downward short-wave irradiance at Earth surface	10 km	N/A	1h	1 month after the observation period				
	Surface Temperature	Air temperature near surface	10 km	N/A	< 1 h	6h				
	Surface Wind Speed and Direction	Wind speed near surface	10 km	N/A	< 1 h	6h				

CID Type: **Wet and Dry**

CID Category: **River flood**

Definition: Episodic high water levels in streams and rivers driven by basin runoff and the expected seasonal cycle of flooding.

CID: River Flood	Relevant ECV(s)	ECVs products	Current requirements				Higher Resolution Needed			
			spatial resolution (horizontal)	spatial resolution (vertical)	temporal resolution	timeliness	spatial resolution (horizontal)	spatial resolution (vertical)	temporal	timeliness
TOPC	River Discharge	River Discharge	N/A*	N/A	1 h	1 d				
		Water Level	< 20 m	N/A	1 h	1 d				
AOPC	Precipitation	accumulated precipitation	50km	N/A	1 d	1 d				