

| Measurement Domain | Measurement Sub-Domain | Measurement Name | Measurement Description |
|--------------------|--------------------------------|---|---|
| Atmosphere | Aerosols | Aerosol absorption optical depth (column/profile) | Optical depth (OD) is the integral of extinction in the vertical dimension (integral of extinction (km-1 dz). The transmittance of the atmosphere = $T = \text{Exp}(-\text{OD}) = \text{Exp}(-\text{Integral}(\text{extinction dz}))$. [Measurement ID: 220] |
| Atmosphere | Aerosols | Aerosol effective radius (column/profile) | Vertical profile of the size distribution of aerosol, assimilated to spheres of the same radius. Requested in the troposphere (assumed height: 12 km) and as columnar average - Physical unit: [mm] - Accuracy unit: [mm]. [Measurement ID: 126] |
| Atmosphere | Aerosols | Aerosol Extinction / Backscatter (column/profile) | 3D field of spectral volumetric extinction cross-section of aerosol particles - Measuring Units m-1, Uncertainty Units m-1 [Measurement ID: 29] |
| Atmosphere | Aerosols | Aerosol Layer Height | Height of vertically localized aerosol layers in the free troposphere, such as desert dust, biomass burning aerosol or volcanic ash plumes. Measuring Units km, Uncertainty Units km [Measurement ID: 257] |
| Atmosphere | Aerosols | Aerosol optical depth (column/profile) | The aerosol optical depth or optical thickness (τ) is defined as the integrated extinction coefficient over a vertical column of unit cross section. [Measurement ID: 33] |
| Atmosphere | Aerosols | Aerosol Single Scattering Albedo | The spectrally dependent ratio of the aerosol scattering to the aerosol extinction. [Measurement ID: 256] |
| Atmosphere | Aerosols | Visibility | The aerosol optical depth or optical thickness (τ) is defined as the integrated extinction coefficient over a vertical column of unit cross section. [Measurement ID: 207] |
| Atmosphere | Aerosols | Volcanic ash | The location of a volcanic ash cloud. [Unit of measurement - Lat/Long] [Measurement ID: 199] |
| Atmosphere | Atmospheric Humidity Fields | Atmospheric specific humidity (at surface) | In a system of moist air, the ratio of the mass of water vapor to the total mass of the air. Conventionally measured at 2 m height [Unit of measurement- g/kg] [Measurement ID: 135] |
| Atmosphere | Atmospheric Humidity Fields | Atmospheric specific humidity (column/profile) | Vertical profile of the specific humidity in the atmosphere - Requested from surface to top of atmosphere (layers: LT, HT, LS, HS&M) + Total column - Physical units: [g/kg] for profile, [kg/m2] for total column - Accuracy unit: [%] for profile, [kg/m2] for total column. [Measurement ID: 13] |
| Atmosphere | Atmospheric Humidity Fields | Water vapour imagery | Level-1 product (not a geophysical parameter). Multi-channel imagery covering wavelengths in the range 0.4-14 μm including water vapour bands for atmospheric tracing in clear-air at more levels (e.g., for winds) - Accuracy expressed as Modulation Transfer Function (MTF) at the Nyquist spatial wavelength (twice the resolution). Actually [MTF-1] is used, so that smaller figures correspond to better performance, as usual. [Measurement ID: 231] |
| Atmosphere | Atmospheric Temperature Fields | Air temperature (near surface) | Air temperature at a known height above the surface with the height specified in the metadata - Measuring Units K, Uncertainty Units K [Measurement ID: 138] |
| Atmosphere | Atmospheric Temperature Fields | Atmospheric pressure (over land surface) | Pressure caused by the weight of the atmosphere. At sea level it has a mean value of one atmosphere but reduces with increasing altitude. Conventionally measured at 2 m height. [Unit of measurement - hPa] [Measurement ID: 136] |
| Atmosphere | Atmospheric Temperature Fields | Atmospheric pressure (over sea surface) | Pressure caused by the weight of the atmosphere. At sea level it has a mean value of one atmosphere but reduces with increasing altitude. Conventionally measured at 2 m height. [Unit of measurement - hPa] [Measurement ID: 137] |

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| Atmosphere | Atmospheric Temperature Fields | Atmospheric stability index | Generic term to indicate a family of methods to infer the temperature difference between an air parcel affected by vertical motion and the surrounding environment. Supportive of temperature profile and specific humidity profile). [Unit of measurement - K] [Measurement ID: 119] |
| Atmosphere | Atmospheric Temperature Fields | Atmospheric temperature (column/profile) | Vertical profile of the atmospheric temperature - Requested from surface to TOA (layers: LT, HT, LS, HS&M) - Physical unit: [K] - Accuracy unit: [K]. [Measurement ID: 1] |
| Atmosphere | Atmospheric Temperature Fields | Cloud base height | Height of the bottom surface of the cloud - Physical unit: [km] - Accuracy unit: [km]. [Measurement ID: 115] |
| Atmosphere | Atmospheric Temperature Fields | Height of the top of the Planetary Boundary Layer | Height of the surface separating the PBL from the free atmosphere - Physical unit: [km] - Accuracy unit: [km]. [Measurement ID: 122] |
| Atmosphere | Atmospheric Temperature Fields | Height of tropopause | Height of the surface separating the troposphere from the stratosphere - Physical unit: [km] - Accuracy unit: [km]. [Measurement ID: 120] |
| Atmosphere | Atmospheric Temperature Fields | Temperature of tropopause | Atmospheric temperature at the height of the surface separating the troposphere from the stratosphere - Physical unit: [K] - Accuracy unit: [K]. [Measurement ID: 121] |
| Atmosphere | Atmospheric Winds | Oil spill cover | Fraction of an ocean area polluted by hydrocarbons released from ships, accidental or deliberate. Impacting on ocean-atmosphere exchanges. Requested in both open ocean and coastal zone - Physical unit: [%] - Accuracy unit: [%]. [Measurement ID: 219] |
| Atmosphere | Atmospheric Winds | Turbulence | Random and continuously changing air motions which are superposed on the mean motion of the air. [Unit of measurement - classes] [Measurement ID: 210] |
| Atmosphere | Atmospheric Winds | Wind profile (horizontal) | Vertical profile of the horizontal vector component (2D) of the 3D wind vector - Requested from surface to TOA (layers: LT, HT, LS, HS&M) - Physical unit: [m/s] - Accuracy unit: [m/s] - Intended as vector error, i.e. the module of the vector difference between the observed vector and the true vector. [Measurement ID: 5] |
| Atmosphere | Atmospheric Winds | Wind profile (vertical) | A series of wind direction and wind speed measurements taken at various levels in the atmosphere that show the wind structure of the atmosphere over a specific location. [Measurement ID: 9] |
| Atmosphere | Atmospheric Winds | Wind speed over land surface (horizontal) | The rate at which air is moving horizontally past a given point. It may be a 2-minute average speed (reported as wind speed) or an instantaneous speed (reported as a peak wind speed, wind gust, or squall). Conventionally measured at 10 m height. [Unit of measurement - m/s] [Measurement ID: 140] |
| Atmosphere | Atmospheric Winds | Wind vector over land surface (horizontal) | The wind vector represents the motion of the air mass over the ground. It is described by wind speed and the inverse of wind direction. Conventionally measured at 10 m height. Accuracy is the modulus of the vector difference between measured and true vectors. [Unit of measurement - m/s] [Measurement ID: 142] |

| Measurement Domain | Measurement Sub-Domain | Measurement Name | Measurement Description | |
|--------------------|--|---|--|---|
| Atmosphere | Cloud particle properties and profile | Cloud drop effective radius | Size distribution of liquid water drops, assimilated to spheres of the same volume. Considered as both a 3D field throughout the troposphere and a 2D field at the top of cloud surface - Measuring Units μm , Uncertainty Units μm [Measurement ID: 127] | Deleted: size (at cloud top) Formatted Table |
| Atmosphere | Cloud particle properties and profile | Cloud ice (column/profile) | Vertical profile of atmospheric water in the liquid phase (precipitating or not). Measured in the troposphere (assumed height: 12 km), and as total column - Physical unit: profile [g/m ²] - Accuracy unit: profile [%], total column [g/m ²]. [Measurement ID: 21] | Deleted: Vertical profile of the size Deleted: Requested in |
| Atmosphere | Cloud particle properties and profile | Cloud ice content (at cloud top) | Vertical profile of the size distribution of ice particles, assimilated to spheres of the same volume. Requested in the troposphere (assumed height: 12 km), and at the cloud top - Physical unit: [mm] - Accuracy unit: [mm]. [Measurement ID: 112] | Deleted: (assumed height: 12 km), Deleted: top |
| Atmosphere | Cloud particle properties and profile | Cloud ice effective radius (column/profile) | Area weighted mean radius of the cloud droplets. [Measurement ID: 232] | Deleted: Physical unit: [mm] - Accuracy unit: [mm]. Deleted: solid Deleted: Requested |
| Atmosphere | Cloud particle properties and profile | Cloud liquid water (column/profile) | Vertical profile of atmospheric water in the liquid phase (precipitating or not). Requested in the troposphere (assumed height: 12 km), and as total column - Physical unit: profile [g/m ²] - Accuracy unit: profile [%], total column [kg/m ²]. [Measurement ID: 21] | Formatted Table Formatted Table |
| Atmosphere | Cloud particle properties and profile | Cloud optical depth | Impact of the cloud water column on radiation propagation - Physical unit: [dimensionless] - Accuracy unit: [%]. [Measurement ID: 128] | |
| Atmosphere | Cloud particle properties and profile | Precipitation Profile (liquid or solid) | Vertical profile of the precipitation rate - Physical unit: [g×s ⁻¹ ×m ⁻²] (vertical flux of precipitation water mass) - Accuracy unit: [%]. [Measurement ID: 21] | Formatted Table |
| Atmosphere | Cloud type, amount and cloud top temperature | Cloud cover | 3D field of fraction of sky filled by clouds. - Physical unit: [%], Accuracy unit: [%] [Measurement ID: 111] | Deleted: Fraction |
| Atmosphere | Cloud type, amount and cloud top temperature | Cloud imagery | Intended for observation of features like cloud occurrence, pattern, frontal bands, cyclones, volcanic ash plumes. [Measurement ID: 109] | Deleted: , in several layers. Requested in the troposphere (assumed height: 12 km), and as projection of the total column |
| Atmosphere | Cloud type, amount and cloud top temperature | Cloud mask | Binary product (cloud or cloud-free) derived from Cloud imagery - Accuracy expressed as Rate [HR] and False Alarm Rate [FAR]. [Measurement ID: 233] | Deleted: : [%] - |
| Atmosphere | Cloud type, amount and cloud top temperature | Cloud top height | Height of the upper surface of the cloud - Physical unit: [km] - Accuracy unit: [km]. [Measurement ID: 113] | Deleted: : [%]. Formatted Table |
| Atmosphere | Cloud type, amount and cloud top temperature | Cloud top pressure | Pressure at the top of the cloud - Measuring Units hPa, Uncertainty Units hPa [Measurement ID: 269] | Formatted Table |
| Atmosphere | Cloud type, amount and cloud top temperature | Cloud top temperature | Temperature of the top of the cloud (highest cloud in case of multi-layer clouds) - Physical unit: [K], Accuracy unit: [K] [Measurement ID: 114] | Formatted Table Deleted: upper surface |
| Atmosphere | Cloud type, amount and cloud top temperature | Cloud type | Result of cloud type classification - Accuracy expressed as number of classes. Accuracy expressed as number of classes - 1 is used, so that smaller figure corresponds to better performance, as usual. [Measurement ID: 110] | Deleted: : Deleted:] - |
| Atmosphere | Cloud type, amount and cloud top temperature | Freezing level height | Height of the atmospheric layer in cloud where liquid-solid states transform into each other. Physical unit: [km] - Accuracy unit: [km]. [Measurement ID: 234] | Deleted: : Deleted: :. Formatted Table |

| Measurement Domain | Measurement Sub-Domain | Measurement Name | Measurement Description |
|--------------------|--|--|--|
| Atmosphere | Cloud type, amount and cloud top temperature | Melting layer depth in clouds | Depth of the atmospheric layer in cloud where liquid-solid states transform into each other. Physical unit: [km] - Accuracy unit: [km]. [Measurement ID: 235] |
| Atmosphere | Lightning Detection | Total lightning density | Total number of detected flashes in the corresponding time interval and the space unit. Physical unit: [cm] - Accuracy unit: [cm]. [Measurement ID: 208] |
| Atmosphere | Liquid water and precipitation rate | Precipitation index (daily cumulative) | Cumulative precipitation over a 24-hour period. [Measurement ID: 118] |
| Atmosphere | Liquid water and precipitation rate | Precipitation intensity at the surface (liquid or solid) | Intensity of precipitation reaching the ground - Physical unit: [mm/h] (if solid, mm/h water after melting) - Accuracy unit: [mm/h]. Since accuracy changes with intensity, necessary to specify a reference intensity. Assumed rate: 5 mm/h. [Measurement ID: 118] |
| Atmosphere | Ozone | O3 Mole Fraction | 3D field of the amount of O3 (Ozone, expressed in moles) divided by the total amount of constituents in air (also expressed in moles) - Resolution Units km [Measurement ID: 270] |
| Atmosphere | Ozone | O3 Total Column | 2D field of total amount of O3 molecules per unit area in an atmospheric column extending from the Earth's surface to the upper edge of the atmosphere (Dobson units) - Measurement Units [DU], Dobson Unit, for total column (1 DU = 2.69 · 10 ²⁰ molecules/m ²) - Accuracy unit: [DU] [Measurement ID: 270] |
| Atmosphere | Radiation budget | Diffuse attenuation coefficient (DAC) | Former name: "Water clarity". Parameter extracted from ocean colour observation of water turbidity and vertical processes in the ocean. Requested in both open ocean and coastal zone - Physical unit: [m ⁻¹] - Accuracy unit: [m ⁻¹]. [Measurement ID: 201] |
| Atmosphere | Radiation budget | Downward long-wave irradiance at Earth surface | Flux density of radiation emitted by the gases, aerosols and clouds of the atmosphere at Earth's surface - Physical unit [W/m ²], Accuracy unit [W/m ²] [Measurement ID: 131] |
| Atmosphere | Radiation budget | Downward short-wave irradiance at Earth surface | Flux density of the solar radiation at the Earth surface - Physical unit [W/m ²], Accuracy unit [W/m ²] [Measurement ID: 131] |
| Atmosphere | Radiation budget | Downwelling (Incoming) solar radiation at TOA | Flux density of the solar radiation at the top of the atmosphere - Physical unit [W/m ²], Accuracy unit [W/m ²] [Measurement ID: 123] |
| Atmosphere | Radiation budget | Long-wave cloud emissivity | Fraction of emitted radiation in respect of a black-body at the same temperature as the cloud top. Varies with wave-length. [Unit of measurement - dimensionless] [Measurement ID: 135] |
| Atmosphere | Radiation budget | Long-wave Earth surface emissivity | Emissivity of the Earth's surface in the thermal IR, function of the wavelength - Physical unit: [%] - Accuracy unit: [%]. [Measurement ID: 135] |
| Atmosphere | Radiation budget | Short-wave cloud reflectance | Reflectance of the solar radiation from clouds - Physical unit: [%] - Accuracy unit: [%] [Measurement ID: 129] |

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| Measurement Domain | Measurement Sub-Domain | Measurement Name | Measurement Description | |
|--------------------|--------------------------------------|--|---|---|
| Atmosphere | Radiation budget | Short-wave Earth surface bi-directional reflectance | Reflectance of the Earth's surface function of the viewing angle and the illumination conditions in the range 0.4-0.7 μm (or other specific short-wave ranges) - Physical unit: [%] - Accuracy unit: [%]. [Measurement ID: 133] | Formatted Table |
| Atmosphere | Radiation budget | Solar Spectral Irradiance | Wavelength-dependent energy input to the top of the Earth's atmosphere, at a standard distance of one Astronomical Unit from the Sun - Physical unit: [W m-2 nm-1] [Measurement ID: 261] | |
| <u>Atmosphere</u> | <u>Radiation budget</u> | <u>Upward long-wave irradiance at TOA</u> | <u>Flux of the terrestrial radiation in the range 4-200 μm (thermal emission) moving to space through the top of the atmosphere - Physical unit [W/m2], Accuracy unit [W/m2] [Measurement ID: 125]</u> | |
| <u>Atmosphere</u> | <u>Radiation budget</u> | <u>Upward short-wave irradiance at TOA</u> | <u>Flux of the terrestrial radiation in the range 0.2-4 μm (reflected solar radiation) moving to space through the top of the atmosphere - Physical unit [W/m2], Accuracy unit [W/m2] [Measurement ID: 124]</u> | Formatted Table |
| Atmosphere | Radiation budget | Upwelling (Outgoing) long-wave radiation at Earth surface | Flux of thermal radiation from the Earth's surface - Physical unit: [W/m2] - Accuracy unit: [W/m2]. [Measurement ID: 134] | Deleted: Atmosphere ... [11] Formatted Table |
| Atmosphere | Radiation budget | Upwelling (Outgoing) Short-wave Radiation at the Earth Surface | Flux of short-wave radiation from the Earth's surface - Physical unit: [W/m2] - Accuracy unit: [W/m2]. [Measurement ID: 260] | Deleted: Atmosphere ... [12] Formatted Table |
| Atmosphere | Radiation budget | Upwelling (Outgoing) spectral radiance at TOA | Level-1 product. Spectral range 0.2-200 nm. Resolving power $\lambda/\Delta\lambda = 1000$. Accuracy as SNR (Signal-to-Noise-Ratio), actually SNR-1 so that smaller figure means better performance, as usual. WMO and IOCCG quote accuracy in [%] [Measurement ID: 260] | Formatted Table Deleted: Atmospheric Chemistry - |
| Atmosphere | Trace gases (excluding ozone) | BrO (column/profile) | BrO = Bromine monoxide. Requested from surface to TOA (layers: LT, HT, LS, HS&M) - Physical unit: [ppm] - Accuracy unit: [%]. [Measurement ID: 94] | Deleted: Atmospheric Chemistry - Formatted Table |
| Atmosphere | Trace gases (excluding ozone) | C2H2 (column/profile) | C2H2 = Acetylene. Requested in the troposphere (layers: LT, HT) - Physical unit: [ppm] - Accuracy unit: [%]. [Measurement ID: 221] | Deleted: Atmospheric Chemistry - |
| Atmosphere | Trace gases (excluding ozone) | C2H6 (column/profile) | C2H6 = Ethane. Requested in the troposphere (layers: LT, HT) - Physical unit: [ppm] - Accuracy unit: [%]. [Measurement ID: 222] | Deleted: Atmospheric Chemistry - Moved (insertion) [3] |
| Atmosphere | Trace gases (excluding ozone) | CFC-11 (column/profile) | CFC-11 = Trichlorofluoromethane = Freon-11. Requested from surface to TOA (layers: LT, HT, LS, HS&M) - Physical unit: [ppm] - Accuracy unit: [%]. [Measurement ID: 54] | Formatted Table |
| Atmosphere | Trace gases (excluding ozone) | CFC-12 (column/profile) | CFC-12 = Dichlorodifluoromethane = Freon-12. Requested from surface to TOA (layers: LT, HT, LS, HS&M) - Physical unit: [ppm] - Accuracy unit: [%]. [Measurement ID: 59] | Deleted: Atmospheric Chemistry - CH2O |
| Atmosphere | Trace gases (excluding ozone) | CH3Br (column/profile) | CH3BR = Methyl Bromide. Requested from surface to TOA (layers: LT, HT) - Physical unit: [ppm] - Accuracy unit: [%]. [Measurement ID: 223] | Deleted: CH2O = HCHO = Formaldehyde. Requested in the troposphere (layers: LT, HT) + Total column - |
| <u>Atmosphere</u> | <u>Trace gases (excluding ozone)</u> | <u>CH4 Mole Fraction</u> | <u>3D field of amount of CH4 (Methane, expressed in moles) divided by the total amount of constituents in dry air (also expressed in moles) - Resolution Units km, Measuring Units molecules.cm-2, Uncertainty Units % [Measurement ID: 39]</u> | Deleted: for profile, units of [1.3×1015 molecules/cm2] for total column ... Deleted:] for profile, [1.3×1015 cm-2] for total column. Deleted: 215 |

| Measurement Domain | Measurement Sub-Domain | Measurement Name | Measurement Description | |
|--------------------|-------------------------------|--------------------------|--|---|
| Atmosphere | Trace gases (excluding ozone) | CH4 Total Column | 2D field of total amount of CH4 molecules per unit area in an atmospheric column extending from the Earth's surface to the upper edge of the atmosphere - Measuring Units molecules.cm-2, Uncertainty Units % [Measurement ID: 272] | Deleted: Atmospheric Chemistry - CH3Br (column/profile)... |
| Atmosphere | Trace gases (excluding ozone) | CH4 Tropospheric Column | 2D field of total amount of CH4 molecules per unit area in an atmospheric column extending from the Earth's surface to the tropopause - Measuring Units molecules.cm-2, Uncertainty Units % [Measurement ID: 271] | Formatted Table |
| Atmosphere | Trace gases (excluding ozone) | CHOCHO (column/profile) | CHOCHO = Physical unit: [ppm] - Accuracy unit: [%]. [Measurement ID: 217] | Moved up [3]: CH3BR = Methyl Bromide. |
| Atmosphere | Trace gases (excluding ozone) | ClO (column/profile) | ClO = Chlorine monoxide = Hypochlorite. Requested from surface to TOA (layers: LT, LS, HS&M) - Physical unit: [ppm] - Accuracy unit: [%]. [Measurement ID: 99] | Deleted: Physical unit: [ppm] - Accuracy unit: [%]. [Measurement ID: 223] |
| Atmosphere | Trace gases (excluding ozone) | ClONO2 (column/profile) | ClONO2 = Chlorine nitrate. Requested from mid-troposphere to TOA (layers: HT, L) - Physical unit: [ppm] - Accuracy unit: [%]. [Measurement ID: 104] | Deleted: Atmospheric Chemistry - CH4 (column/profile) |
| Atmosphere | Trace gases (excluding ozone) | CO Mole Fraction | 3D field of amount of CO (Carbon monoxide, expressed in moles) divided by the total of all constituents in dry air (also expressed in moles) - Resolution Units km [Measurement ID: 49] | Deleted: = Methane. Requested |
| Atmosphere | Trace gases (excluding ozone) | CO Total Column | 2D field of total amount of CO molecules per unit area in an atmospheric column extending from the Earth's surface to the upper edge of the atmosphere - Measuring Units molecules.cm-2, Uncertainty Units % [Measurement ID: 276] | Deleted: TOA (layers: LT, HT, LS, HS&M) + Total column - Physical unit: [ppm] - Accuracy unit: [%]. |
| Atmosphere | Trace gases (excluding ozone) | CO Tropospheric Column | 2D field of total amount of CO molecules per unit area in an atmospheric column extending from the Earth's surface to the tropopause. CO = Carbon monoxide. Requested from surface to low stratosphere (layers: LT, HT, LS) + Total column - Measuring Units molecules.cm-2, Uncertainty Units % [Measurement ID: 275] | Deleted: 39 |
| Atmosphere | Trace gases (excluding ozone) | CO2 Mole Fraction | 3D field of amount of CO2 (Carbon dioxide, expressed in moles) divided by the total of all constituents in dry air (also expressed in moles) - Resolution Units km, Measuring Units molecules.cm-2, Uncertainty Units % [Measurement ID: 44] | Formatted Table |
| Atmosphere | Trace gases (excluding ozone) | CO2 Total Column | 2D field of total amount of CO2 molecules per unit area in an atmospheric column extending from the Earth's surface to the upper edge of the atmosphere - Measuring Units molecules.cm-2, Uncertainty Units % [Measurement ID: 274] | Deleted: Atmospheric Chemistry - |
| Atmosphere | Trace gases (excluding ozone) | CO2 Tropospheric Column | 2D field of total amount of CO2 molecules per unit area in an atmospheric column extending from the Earth's surface to the tropopause - Measuring Units molecules.cm-2, Uncertainty Units % [Measurement ID: 273] | Deleted: Atmospheric Chemistry - |
| Atmosphere | Trace gases (excluding ozone) | COS (column/profile) | COS = Carbonyl sulfide. Requested from surface to low stratosphere (layers: LT, HT, LS) - Physical unit: [ppm] - Accuracy unit: [%]. [Measurement ID: 212] | Formatted Table |
| Atmosphere | Trace gases (excluding ozone) | HCFC-22 (column/profile) | HCFC-22 = Chlorodifluoromethane or difluoromonochloromethane. Physical unit: [ppm] - Accuracy unit: [%]. [Measurement ID: 224] | Deleted: Atmospheric Chemistry - CO2 (column/profile) |
| Atmosphere | Trace gases (excluding ozone) | HCHO Mole Fraction | 3D field of amount of HCHO (Formaldehyde, expressed in moles) divided by the total of all constituents in dry air (also expressed in moles). [Measurement ID: 215] | Deleted: = Carbon dioxide. Requested |
| | | | | Deleted: TOA (layers: LT, HT, LS, HS&M) + Total column - Physical unit: [ppm] - Accuracy unit: [%]. |
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| Measurement Domain | Measurement Sub-Domain | Measurement Name | Measurement Description | |
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| Atmosphere | Trace gases (excluding ozone) | HCHO Total Column | 2D field of total amount of HCHO molecules per unit area in an atmospheric column extending from the Earth's surface to the upper edge of the atmosphere - Measuring Units molecules.cm-2, Uncertainty Units % [Measurement ID: 292] | |
| Atmosphere | Trace gases (excluding ozone) | HCHO Tropospheric Column | 2D field of total amount of HCHO molecules per unit area in an atmospheric column extending from the Earth's surface to the tropopause - Measuring Units molecules.cm-2, Uncertainty Units % [Measurement ID: 291] | |
| Atmosphere | Trace gases (excluding ozone) | HCl (column/profile) | HCl = Hydrogen chloride. Requested from mid-troposphere to TOA (layers: HT, LS) - Physical unit: [ppm] - Accuracy unit: [%]. [Measurement ID: 89] | Deleted: Atmospheric Chemistry - |
| Atmosphere | Trace gases (excluding ozone) | HDO (column/profile) | HDO = Water vapour (with one hydrogen nucleus replaced by its deuterium isotope). Requested from low stratosphere to TOA (layers: LS and HS&M) - Physical unit: [ppm] - Accuracy unit: [%]. [Measurement ID: 225] | Formatted Table Deleted: Atmospheric Chemistry - |
| Atmosphere | Trace gases (excluding ozone) | HNO3 (column/profile) | HNO3 = Nitric acid. Requested from surface to TOA (layers: LT, HT, LS, HS&M) - Physical unit: [ppm] - Accuracy unit: [%]. [Measurement ID: 84] | Formatted Table |
| Atmosphere | Trace gases (excluding ozone) | N2O (column/profile) | N2O = Nitrous oxide. Requested from surface to TOA (layers: LT, HT, LS, HS&M) - Physical unit: [ppm] - Accuracy unit: [%]. [Measurement ID: 79] | Deleted: Atmospheric Chemistry - Deleted: Atmospheric Chemistry - |
| Atmosphere | Trace gases (excluding ozone) | N2O5 (column/profile) | N2O5 = Nitrogen pentoxide. Requested in the troposphere (layers: LT, HT) - Physical unit: [ppm] - Accuracy unit: [%]. [Measurement ID: 226] | Deleted: Atmospheric Chemistry - |
| Atmosphere | Trace gases (excluding ozone) | NO (column/profile) | NO = Nitric oxide. Requested from surface to TOA (layers: LT, HT, LS, HS&M) - Physical unit: [ppm] - Accuracy unit: [%]. [Measurement ID: 69] | Formatted Table Deleted: Atmospheric Chemistry - |
| Atmosphere | Trace gases (excluding ozone) | NO2 Mole Fraction | 3D field of amount of NO2 (Nitrogen peroxide, expressed in moles) divided by the total amount of all constituents in dry air (also expressed in moles) - Resolution Units km Carbon dioxide. Requested from surface to TOA (layers: LT, HT, LS, HS&M) + Total Measuring Units molecules.cm-2, Uncertainty Units %, Physical unit [ppm], Accuracy unit [%] [Measurement ID: 74] | Formatted Table Deleted: Atmospheric Chemistry - NO2 (column/profile) Deleted: = |
| Atmosphere | Trace gases (excluding ozone) | NO2 Total Column | 2D field of total amount of NO2 molecules per unit area in an atmospheric column extending from the Earth's surface to the upper edge of the atmosphere - Measuring Units molecules.cm-2, Uncertainty Units % [Measurement ID: 278] | Deleted: . Deleted: . |
| Atmosphere | Trace gases (excluding ozone) | NO2 Tropospheric Column | 2D field of total amount of NO2 molecules per unit area in an atmospheric column extending from the Earth's surface to the tropopause - Measuring Units molecules.cm-2, Uncertainty Units % [Measurement ID: 277] | Deleted:] for profile, units of [1.3×10 ¹⁵ molecules/cm ²] for total column - Deleted: for profile, [1.3×10 ¹⁵ cm ⁻²] for total column. |
| Atmosphere | Trace gases (excluding ozone) | OCIO (column/profile) | OCIO = chlorate. Physical unit: [ppm] - Accuracy unit: [%]. [Measurement ID: 227] | Deleted: Atmospheric Chemistry - |
| Atmosphere | Trace gases (excluding ozone) | OH (column/profile) | OH = Hydroxyl radical. Requested from surface to TOA (layers: LT, HT, LS, HS&M) - Physical unit: [ppm] - Accuracy unit: [%]. [Measurement ID: 64] | Formatted Table |
| Atmosphere | Trace gases (excluding ozone) | PAN (column/profile) | PAN = Peroxy Acetyl Nitrate. Requested in the troposphere (layers: LT, HT) - Physical unit: [ppm] - Accuracy unit: [%]. [Measurement ID: 228] | Deleted: Atmospheric Chemistry - Deleted: Atmospheric Chemistry - |

| Measurement Domain | Measurement Sub-Domain | Measurement Name | Measurement Description |
|------------------------------------|---|--|--|
| Atmosphere | Trace gases (excluding ozone) | pCO2 | Partial pressure of carbon dioxide at the surface of the sea - Measuring and Uncertainty Units microatm [Measurement ID: 286] |
| Atmosphere | Trace gases (excluding ozone) | PSC (column/profile) | PSC = Polar Stratospheric Clouds. Requested in the lower stratosphere (layer: LS) Accuracy expressed as Hit Rate [HR] and False Alarm Rate [FAR]. [Measurement ID: 229] |
| Atmosphere | Trace gases (excluding ozone) | SF6 (column/profile) | SF6 = Sulfur hexafluoride. Requested from low stratosphere to TOA (layers: LS and ... Physical unit: [ppm] - Accuracy unit: [%]. [Measurement ID: 230] |
| Atmosphere | Trace gases (excluding ozone) | SO2 Mole Fraction | 3D field of amount of SO2 (Sulfur dioxide, expressed in moles) divided by the total amount of all constituents in dry air (also expressed in moles) - Measuring Units molecules.cm-2, Uncertainty Units % [Measurement ID: 195] |
| Atmosphere | Trace gases (excluding ozone) | SO2 Total Column | 2D field of total amount of SO2 molecules per unit area in an atmospheric column extending from the Earth's surface to the upper edge of the atmosphere - Measuring Units molecules.cm-2, Uncertainty Units % [Measurement ID: 290] |
| Atmosphere | Trace gases (excluding ozone) | SO2 Tropospheric Column | 2D field of total amount of SO2 molecules per unit area in an atmospheric column extending from the Earth's surface to the tropopause - Measuring Units molecules.cm-2, Uncertainty Units % [Measurement ID: 289] |
| Gravity and Magnetic Fields | Gravity, Magnetic and Geodynamic measurements | Auroral Emissions | A highly sensitive camera that collects photons radiated by auroral processes. [Measurement ID: 263] |
| Gravity and Magnetic Fields | Gravity, Magnetic and Geodynamic measurements | Crustal Motion | Changes in time of the position and height of the Earth's plates. Indicative of the lithospheric dynamics, thus useful for earthquake prediction - Physical unit: [mm/y] - Accuracy unit: [%]. [Measurement ID: 191] |
| Gravity and Magnetic Fields | Gravity, Magnetic and Geodynamic measurements | Crustal plates positioning | Basic for monitoring the evolution of the lithosphere dynamics - Physical unit: [cm] - Accuracy unit: [cm]. [Measurement ID: 190] |
| Gravity and Magnetic Fields | Gravity, Magnetic and Geodynamic measurements | Electric Field (vector) | An instrument that measures the intensity and direction of the electric field. [Measurement ID: 262] |
| Gravity and Magnetic Fields | Gravity, Magnetic and Geodynamic measurements | Electron density profile | Vertical profile of the electron density in the ionosphere and plasmasphere - Physical unit: [electrons/m3] - Accuracy unit: [%]. [Measurement ID: 237] |
| Gravity and Magnetic Fields | Gravity, Magnetic and Geodynamic measurements | Electron Energy and Pitch Angle Distribution | Electrons spiral around magnetic field lines, and their motion is described by their velocity along the local magnetic field and perpendicular to it. The pitch angle is derived from the ratio of those two velocities and can predict which electrons will precipitate in the ionosphere to produce the aurora and which will be reflected back along the magnetic field line. [Measurement ID: 267] |
| Gravity and Magnetic Fields | Gravity, Magnetic and Geodynamic measurements | Geoid | Equipotential surface which would coincide exactly with the mean ocean surface if the oceans were in equilibrium, at rest, and extended through the continents (such as with very narrow channels) - Physical unit: [cm] - Accuracy unit: [cm]. [Measurement ID: 184] |

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| Measurement Domain | Measurement Sub-Domain | Measurement Name | Measurement Description |
|-----------------------------|---|--|---|
| Gravity and Magnetic Fields | Gravity, Magnetic and Geodynamic measurements | Gravity field | Indicative of the statics and dynamics of the lithosphere and the mantle - Physical unit: [mGal] (1 Gal = 0.01 m/s ² . i.e. 1 mGal ≈ 10 ⁻⁶ g ₀ . "Gal" stands for Galileo) - Accuracy unit: [mGal]. [Measurement ID: 185] |
| Gravity and Magnetic Fields | Gravity, Magnetic and Geodynamic measurements | Gravity gradients | Gradient of the Earth's gravity field measured at the satellite orbital height - Physical unit: [E], Eötvös (1 E = 1 mGal / 10 km) - Accuracy unit: [E]. [Measurement ID: 186] |
| Gravity and Magnetic Fields | Gravity, Magnetic and Geodynamic measurements | Ion Density, Drift Velocity, and Temperature | An instrument that measures the amount of ions encountered by the spacecraft, and attempts to deflect them to assess their velocity and temperature. [Measurement ID: 264] |
| Gravity and Magnetic Fields | Gravity, Magnetic and Geodynamic measurements | Magnetic field (scalar) | [Unit of measurement - n tesla] [Measurement ID: 188] |
| Gravity and Magnetic Fields | Gravity, Magnetic and Geodynamic measurements | Magnetic field (vector) | [Unit of measurement - n tesla] [Measurement ID: 187] |
| Gravity and Magnetic Fields | Gravity, Magnetic and Geodynamic measurements | Neutral Particle Composition and Flow Velocity | A directional instrument that measures the amount of neutrals encountered by the spacecraft. [Measurement ID: 265] |
| Gravity and Magnetic Fields | Gravity, Magnetic and Geodynamic measurements | Total electron content (TEC) | Number of electrons in between two points. Observed under more viewing angles so as to generate profiles by tomography - Physical unit: [electrons/m ²]; practical unit: TECU = 10 ¹⁶ electrons/m ² - Accuracy unit: [%]. [Measurement ID: 238] |
| Gravity and Magnetic Fields | Gravity, Magnetic and Geodynamic measurements | ULF-HF Electromagnetic Waves | Radio receiver instrument, recording the wave received from the ground or other spacecraft to determine how it was modified by its travel through the ionosphere. [Measurement ID: 266] |
| Land | Albedo and reflectance | Black and White Sky Albedo | The directional albedo or directional-hemispherical reflectance (also called black-sky albedo) is the integration of the bi-directional reflectance over the viewing hemisphere. It assumes all energy is coming from a direct radiation from the sun and is computed for a specific time. The hemispherical albedo or bi-hemispherical reflectance (also called white-sky albedo) is the integration of the directional albedo over the illumination hemisphere. It assumes a complete diffuse illumination. [Measurement ID: 259] |
| Land | Albedo and reflectance | Earth surface albedo | Hemispherically integrated reflectance of the Earth's surface in the range 0.4-0.7 μm (visible short-wave ranges) - Physical unit: [%] - Accuracy unit: [%]. [Measurement ID: 258] |
| Land | Albedo and reflectance | Fire radiative power | Power radiated by the fire occurring within an area. Physical unit [kW*m ⁻²], Accuracy unit [%]. [Measurement ID: 288] |
| Land | Albedo and reflectance | Fraction of Absorbed PAR (FAPAR) | Fraction of PAR absorbed by vegetation (land or marine) for photosynthesis process (generally around the "red") - Physical unit [%], Accuracy unit [%]. [Measurement ID: 287] |

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| Measurement Domain | Measurement Sub-Domain | Measurement Name | Measurement Description |
|--------------------|------------------------------|---|---|
| Land | Albedo and reflectance | Photosynthetically Active Radiation (PAR) | Flux of downwelling photons of wavelength 0.4-0.7 μm at surface - Physical unit: [μ einstein • m-2 s-1] (1 einstein = 6 • 10 ²³ photons); most frequently used: [W/m ²] - Accuracy unit: [W/m ²]. [Measurement ID: 174] |
| Land | Albedo and reflectance | Snow albedo | Hemispherically integrated reflectance of the snow mantle in the range 0.4-0.7 μm (specific short-wave ranges) - Physical unit: [%] - Accuracy unit: [%]. [Measurement ID: 244] |
| Land | Inland Waters | Lake Area | Area extent of the surface of a lake- Physical unit: [m ²] - Accuracy unit: [m ²]. [Measurement ID: 254] |
| Land | Inland Waters | Lake level | Map of the height of the lake surface. - Physical unit: [cm] - Accuracy unit: [cm]. [Measurement ID: 247] |
| Land | Inland Waters | Lake Surface Temperature | Temperature of the lake surface. - Physical unit: [K] - Accuracy unit: [K]. [Measurement ID: 293] |
| Land | Landscape topography | Land surface topography | Map of land surface heights - Physical unit: [m] - Accuracy unit: [m]. [Measurement ID: 245] |
| Land | Multi-purpose imagery (land) | Active Fire Detection | Techniques that map active (or flaming) fires. [Measurement ID: 249] |
| Land | Multi-purpose imagery (land) | Fire fractional cover | Fraction of a land area where fire is occurring. Physical unit: [%], Accuracy unit: [%]. [Measurement ID: 177] |
| Land | Multi-purpose imagery (land) | Glacier topography | Relates to glacier thickness typically found in mid to high latitudes with a volume/area coverage much smaller than an ice-sheet. [Unit of measurement - cm] [Measurement ID: 178] |
| Land | Multi-purpose imagery (land) | Land surface imagery | Level-1 product (not a geophysical parameter). High-resolution imagery covering wavelengths in the range 0.4-1 μm (cloud-affected) or 1-10 GHz (SAR, all-weather). Accuracy expressed as Modulation Transfer Function (MTF) at the Nyquist spatial wavelength (twice the resolution). Actually [MTF-1] is used, so that smaller figures correspond to better performance, as usual. [Measurement ID: 181] |
| Land | Multi-purpose imagery (land) | Surface Coherent Change Detection | Techniques that exploit the changes between two or several radar images of the same scene, in conditions where there is measurable coherence between at least a fraction of a pair of images, to detect subtle differences in the surface condition that can be related to sub-wavelength motions, surface properties changes or sub-pixel disturbances. [Measurement ID: 248] |
| Land | Soil moisture | Soil moisture at the surface | Fractional content of water in a volume of wet soil. Surface layer (upper few centimeters). Physical unit: [m ³ /m ³] - Accuracy unit: [m ³ /m ³]. [Measurement ID: 171] |
| Land | Soil moisture | Soil moisture in the roots region | Sub-soil vertical profile of the fractional content of water in a volume of wet soil. Requested from surface down to ~ 3 m - Physical unit: [m ³ /m ³] - Accuracy unit: [m ³ /m ³]. [Measurement ID: 239] |
| Land | Surface temperature (land) | Fire temperature | Temperature of the fire occurring within an area - Physical unit: [K] - Accuracy unit: [K]. [Measurement ID: 178] |

| Measurement Domain | Measurement Sub-Domain | Measurement Name | Measurement Description |
|--------------------|-------------------------------|---|---|
| Land | Surface temperature (land) | Land surface temperature | Temperature of the apparent surface of land (bare soil or vegetation) - Physical unit: [K] - Accuracy unit: [K]. [Measurement ID: 170] |
| Land | Surface temperature (land) | Permafrost | Fraction of an area that is persistently frozen (round the year) - Physical unit: [%] - Accuracy unit: [%]. [Measurement ID: 169] |
| Land | Vegetation | Above Ground Biomass (AGB) | Total amount of vegetation in a reference area - Physical unit: [t/ha (tons/hectare)] - Accuracy unit: [t/ha] [Measurement ID: 268] |
| Land | Vegetation | Chlorophyll Fluorescence from Vegetation on Land | Solar induced chlorophyll fluorescence occurs during photosynthesis. It exhibits a strong linear correlation with terrestrial gross primary production (GPP). Direct global space borne observations of the fluorescence emission provide the same or better GPP estimations as those derived from traditional remotely-sensed vegetation indices using ancillary data and model assumptions. [Measurement ID: 250] |
| Land | Vegetation | Land cover | Processed from land surface imagery by assigning identified cluster(s) within a given area to specific classes of objects - Accuracy expressed as number of classes. Actually [classes-1] is used, so that smaller figure corresponds to better performance, as usual. [Measurement ID: 179] |
| Land | Vegetation | Leaf Area Index (LAI) | LAI is the total one-sided area of photosynthetic tissue per unit ground surface area. [Measurement ID: 173] |
| Land | Vegetation | Normalized Differential Vegetation Index (NDVI) | Difference between maximum (in NIR) and minimum (around the Red) vegetation reflectance normalised to the summation. Representative of total biomass, supportive for comparison if not directly measured - Physical unit: [%] - Accuracy unit: [%]. [Measurement ID: 176] |
| Land | Vegetation | Soil type | Result of the classification of different types of soil within a vegetated area - Accuracy expressed as number of classes. Actually [classes-1] is used, so that smaller figure corresponds to better performance, as usual. [Measurement ID: 180] |
| Land | Vegetation | Vegetation Canopy (cover) | Fraction of the ground area covered by tree crowns in %. [Measurement ID: 240] |
| Land | Vegetation | Vegetation Canopy (height) | Vertical projection of an area covered by tree crowns in meters. [Measurement ID: 241] |
| Land | Vegetation | Vegetation Cover | Fraction of vegetated land in an area - Physical unit: [%] - Accuracy unit: [%]. [Measurement ID: 242] |
| Land | Vegetation | Vegetation type | Result of the classification of different types of vegetation within a vegetated area - Accuracy expressed as number of classes. Actually [classes-1] is used, so that smaller figure corresponds to better performance, as usual. [Measurement ID: 176] |
| Ocean | Multi-purpose imagery (ocean) | Ocean imagery and water leaving spectral radiance | A two-dimensional array of water leaving radiance values. [Measurement ID: 154] |

| Measurement Domain | Measurement Sub-Domain | Measurement Name | Measurement Description |
|--------------------|---------------------------|---|--|
| Ocean | Ocean colour/biology | Color dissolved organic matter (CDOM) | Former name: "Yellow substance absorbance". Parameter extracted from ocean colour observation. Indicative of biomass undergoing decomposition processes. Requested in both open ocean and coastal zone - Physical unit: [m-1] - Accuracy unit: [%] at a specific concentration (e.g., 1 m-1). [Measurement ID: 151] |
| Ocean | Ocean colour/biology | Dissolved inorganic carbon (DIC) | The cumulated concentration of inorganic carbon species (dissolved carbon dioxide, carbonic acid, bicarbonate and carbonate) in solution - Units Mol. Kg-1 [Measurement ID: 280] |
| Ocean | Ocean colour/biology | Ocean chlorophyll concentration | Indicator of living phytoplankton biomass, extracted from ocean colour observation. Uncertainty is expressed in mg/m3 for a given concentration of 1 mg/m3 - Measuring Units mg/m3, Uncertainty Units mg/m3 [Measurement ID: 149] |
| Ocean | Ocean colour/biology | Ocean subsurface dissolved oxygen concentration | Concentration of dissolved oxygen - Measuring Units Mol. Kg^-1, Uncertainty Units Mol. Kg^-1 [Measurement ID: 282] |
| Ocean | Ocean colour/biology | Ocean subsurface tracers | Concentration of trace molecules such as tritium and CFCs - Measuring Units Mol. Kg^-1, Uncertainty Units Mol. Kg^-1 [Measurement ID: 283] |
| Ocean | Ocean colour/biology | Ocean suspended sediment concentration | Parameter extracted from ocean colour observation. Indicative of river outflow, re-suspension or pollution of other-than-biological origin. Requested in both open ocean and coastal zone - Physical unit: [g/m3] - Accuracy unit: [%] at a specific concentration (g/m3). [Measurement ID: 150] |
| Ocean | Ocean Salinity | Ocean salinity | 3D field of salinity of the ocean Requested in upper and deep ocean - Physical unit [psu], Practical Salinity Unit, close to 1 [Measurement ID: 281] |
| Ocean | Ocean Salinity | Sea Surface salinity | Salinity of seawater in the surface layer (upper ~ 1 m if observed in MW). In the open ocean the correct term should be "halinity" with reference of the diversity of salts involved. - Measuring Units psu, Uncertainty Units psu [Measurement ID: 152] |
| Ocean | Ocean surface winds | Wind speed over sea surface (horizontal) | Horizontal vector component (2D) of the 3D wind vector over the sea surface - Physical unit: [m/s] - Accuracy unit: [m/s] intended as vector error, i.e. the module of the vector difference between the observed vector and the true vector. [Measurement ID: 141] |
| Ocean | Ocean surface winds | Wind stress | The shear force per unit area exerted by wind blowing over the sea surface. [Unit of measurement - Pa] [Measurement ID: 206] |
| Ocean | Ocean surface winds | Wind vector over sea surface (horizontal) | The wind vector represents the motion of the air mass over the ground. It is described by its speed and the inverse of wind direction. Conventionally measured at 10 m height. For expected performances and in case the measurement is made at a different height than 10m, it is corrected to 10m, indicate in the comments the exact height of the instrument as well as whether correction to 10 m has been applied. Accuracy is the modulus of the vector difference between measured and true vectors. [Unit of measurement - m/s] [Measurement ID: 143] |
| Ocean | Ocean topography/currents | Bathymetry | The measurement of water depth. [Unit of measurement - m] [Measurement ID: 155] |

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| Measurement Domain | Measurement Sub-Domain | Measurement Name | Measurement Description | |
|--------------------|------------------------------------|--|---|--|
| <u>Ocean</u> | <u>Ocean topography/currents</u> | <u>Coastal sea level (tide)</u> | <u>Deviation of sea level from local references in coastal zones, caused by local currents and tides (astronomical and wind-induced) - Measuring units cm, Uncertainty units cm [Measurement ID: 279]</u> | |
| Ocean | Ocean topography/currents | Ocean dynamic topography | Deviation of sea level from the geoid caused by ocean currents (that is after corrections for tides and atmospheric pressure effects) - Physical unit: [cm] - Accuracy unit: [cm]. [Measurement ID: 194] | |
| Ocean | Ocean topography/currents | Ocean surface currents (vector) | <u>Water flow on ocean surface - Physical unit: [cm/s] - Accuracy unit: [cm/s] intended to measure vector error, i.e. the module of the vector difference between the observed vector and the true vector - Measuring Units cm/s, Uncertainty Units cm/s [Measurement ID: 153]</u> | Deleted: Large scale horizontal Formatted Table |
| <u>Ocean</u> | <u>Ocean topography/currents</u> | <u>Ocean velocity</u> | <u>Ocean motion measured at various depth levels - Measuring and Uncertainty Units cm/s [Measurement ID: 285]</u> | Deleted: water that is persistent |
| Ocean | Ocean topography/currents | Sea level | Actual, local sea level inclusive of mean sea level and perturbations (tides, etc.) [Unit: measurement - cm] [Measurement ID: 148] | Deleted: of Deleted: driven by atmospheric circulation. [Unit of measurement - m/s] |
| Ocean | Ocean wave height and spectrum | Dominant wave direction | One feature of the ocean wave spectrum. It is the direction of the most energetic wave in the spectrum - Physical unit: [degrees] - Accuracy unit: [degrees]. [Measurement ID: 145] | Formatted Table |
| Ocean | Ocean wave height and spectrum | Dominant wave period | One feature of the ocean wave spectrum. It is the period of the most energetic wave in the spectrum - Physical unit: [s] - Accuracy unit: [s]. [Measurement ID: 146] | Formatted Table |
| Ocean | Ocean wave height and spectrum | Sea State Wavelength | [Measurement ID: 258] | |
| Ocean | Ocean wave height and spectrum | Significant wave height | Average amplitude of the highest 30 of 100 waves - Physical unit: [m] - Accuracy unit: [m]. [Measurement ID: 145] | Formatted Table |
| Ocean | Ocean wave height and spectrum | Wave directional energy frequency spectrum | 2-D parameter colloquially referred to as "wave spectrum". Describes the wave energy travelling in each direction and frequency band (e.g., 24 distinct azimuth sectors each 15° wide, and 25 frequency bands) - Physical unit: [m ² ×Hz ⁻¹ ×rad ⁻¹] - Accuracy unit: [m ² ×Hz ⁻¹ ×rad ⁻¹]. [Measurement ID: 236] | Formatted Table |
| <u>Ocean</u> | <u>Surface temperature (ocean)</u> | <u>Ocean temperature</u> | <u>3D field of temperature of the ocean Requested in the upper and deep ocean - Measuring and Uncertainty Units K [Measurement ID: 284]</u> | Deleted: the depth of 2 m (" Deleted:). In effect |
| <u>Ocean</u> | <u>Surface temperature (ocean)</u> | <u>Sea surface heat flux</u> | <u>Sea Surface Heat Flux - Measuring and Uncertainty Units W/m² [Measurement ID: 144]</u> | Deleted: observation is more significant of the upper level (< 1 mm, ... |
| Ocean | Surface temperature (ocean) | Sea surface temperature | Temperature of the sea water at surface. The "bulk" temperature refers to the depth typically 2m, the "skin" temperature refers to within the upper 1 mm - Physical unit: [K] - Accuracy unit: [K]. [Measurement ID: 144] | Deleted:) if measured in IR, closer to the bulk temperature if measured in MW - |
| Snow & Ice | Ice sheet topography | Ice sheet topography | Map of ice sheet heights. Intended over land (for the ocean, see Sea-ice thickness) - Physical unit: [cm] - Accuracy unit: [cm]. [Measurement ID: 243] | Deleted: : Deleted:] - |
| Snow & Ice | Ice sheet topography | Sea-ice sheet topography | Vertical projection of an area covered by ice sheets in meters. [Measurement ID: 150] | Deleted: : Deleted:]. Formatted Table |

| Measurement Domain | Measurement Sub-Domain | Measurement Name | Measurement Description |
|--------------------|-----------------------------------|-------------------------------|--|
| Snow & Ice | Sea ice cover, edge and thickness | Glacier Area | 2D vector outlines of glaciers and ice caps (delineating glacier area) [Measurement ID: 252] |
| Snow & Ice | Sea ice cover, edge and thickness | Glacier cover | Fraction of a land area covered by permanent ice - Physical unit: [%] - Accuracy unit: [Measurement ID: 166] |
| Snow & Ice | Sea ice cover, edge and thickness | Glacier motion | Variation of glacier boundary in a specific direction. [Unit of measurement -m/y] [Measurement ID: 167] |
| Snow & Ice | Sea ice cover, edge and thickness | Iceberg fractional cover | Fraction of the ground area covered by icebergs. [Unit of measurement - %] [Measurement ID: 161] |
| Snow & Ice | Sea ice cover, edge and thickness | Iceberg height | Vertical projection of an area covered by icebergs. [Unit of measurement - m] [Measurement ID: 162] |
| Snow & Ice | Sea ice cover, edge and thickness | Sea-ice Concentration | The ocean area fraction of a cell covered by sea ice. [Measurement ID: 253] |
| Snow & Ice | Sea ice cover, edge and thickness | Sea-ice cover | Fraction of ice in an ocean area - Physical unit: [%] - Accuracy unit: [%]. [Measurement ID: 156] |
| Snow & Ice | Sea ice cover, edge and thickness | Sea-ice motion | Sea ice motion, Measuring Units km*d-1 Uncertainty Units km*d-1 [Measurement ID: 255] |
| Snow & Ice | Sea ice cover, edge and thickness | Sea-ice surface temperature | Temperature of the surface of sea-ice - Physical unit: [K] - Accuracy unit: [K]. [Measurement ID: 158] |
| Snow & Ice | Sea ice cover, edge and thickness | Sea-ice thickness | Thickness of the ice sheet, related to sea-ice elevation and density - Physical unit: [Accuracy unit: [cm] [Measurement ID: 193] |
| Snow & Ice | Sea ice cover, edge and thickness | Sea-ice type | Parameter involving several factors (age, roughness, density, etc.) - Accuracy expressed in number of classes. Actually [classes-1] is used, so that smaller figure corresponds to better performance, as usual. [Measurement ID: 157] |
| Snow & Ice | Snow cover, edge and depth | Snow cover | Fraction of snow in a given area - Physical unit: [%] - Accuracy unit: [%]. [Measurement ID: 163] |
| Snow & Ice | Snow cover, edge and depth | Snow detection (mask) | Binary product (snow or snow-free) derived from VIS/IR imagery - Accuracy expressed in Hit Rate [HR] and False Alarm Rate [FAR]. [Measurement ID: 245] |
| Snow & Ice | Snow cover, edge and depth | Snow Grain Size | Grain size of snow ice particle - Physical unit: [mm] - Accuracy unit: [%]. [Measurement ID: 251] |
| Snow & Ice | Snow cover, edge and depth | Snow melting status (wet/dry) | Binary product (dry or melting/thawing) derived from MW imagery - Accuracy expressed in Hit Rate [HR] and False Alarm Rate [FAR]. [Measurement ID: 164] |
| Snow & Ice | Snow cover, edge and depth | Snow surface temperature | Temperature of the surface of the snow mantle - Physical unit: [K] - Accuracy unit: [Measurement ID: 246] |
| Snow & Ice | Snow cover, edge and depth | Snow water equivalent | Total-column water if snow is reduced to liquid. Linked to snow depth through assumptions or observation on density - Physical unit: [mm] - Accuracy unit: [mm]. [Measurement ID: 165] |

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