**CAMS global reanalysis (EAC4)**

These variables are available every 3 hours from the year 2003 to 2023.

List of single level (surface level) and multi-level variables from CAMS

Single level variables.

Total column refers to the total amount of a selected variable in a column of air extending from surface of the Earth (model level 60) to the top of the atmosphere (model level 1). Total column can also be referred to as total <selected variable>, or vertically integrated <selected variable>.

Documentation source: [CAMS: Reanalysis data documentation - Copernicus Knowledge Base - ECMWF Confluence Wiki](https://confluence.ecmwf.int/display/CKB/CAMS%3A+Reanalysis+data+documentation)

List of variables:

|  |  |  |  |
| --- | --- | --- | --- |
| **S.N.** | **Full name** | **Short name** | **Unit** |
| 1 | 10m u-component of wind | u10 | ms-1 |
| 2 | 10m v-component of wind | v10 | ms-1 |
| 3 | 2m dewpoint temperature | d2m | Kelvin |
| 4 | 2m temperature | t2m | Kelvin |
| 5 | Black carbon aerosol optical depth at 550 nm | bcaod550 | ~ |
| 6 | Dust aerosol optical depth at 550 nm | duaod550 | ~ |
| 7 | Land-sea mask | lsm | (0-1) |
| 8 | Mean sea level pressure | msl | Pa |
| 9 | Organic matter aerosol optical depth at 550 nm | omaod550 | ~ |
| 10 | Particulate matter d < 1 µm (PM1) | pm1 | kgm-3 |
| 11 | Particulate matter d < 2.5 µm (PM2.5) | pm2p5 | kgm-3 |
| 12 | Particulate matter d < 10 µm (PM10) | pm10 | kgm-3 |
| 13 | Sea salt aerosol optical depth at 550 nm | ssaod550 | ~ |
| 14 | Sulphate aerosol optical depth at 550 nm | suaod550 | ~ |
| 15 | Surface geopotential | z | m2s-2 |
| 16 | Surface pressure | sp | Pa |
| 17 | Total aerosol optical depth at 469 nm | aod469 | ~ |
| 18 | Total aerosol optical depth at 550 nm | aod550 | ~ |
| 19 | Total aerosol optical depth at 670 nm | aod670 | ~ |
| 20 | Total aerosol optical depth at 865 nm | aod865 | ~ |
| 21 | Total aerosol optical depth at 1240 nm | aod1240 | ~ |
| 22 | Total column carbon monoxide | tcco | kgm-2 |
| 23 | Total column ethane | tc\_c2h6 | kgm-2 |
| 24 | Total column formaldehyde | tchcho | kgm-2 |
| 25 | Total column hydrogen peroxide | tc\_h2o2 | kgm-2 |
| 26 | Total column hydroxyl radical | tc\_oh | kgm-2 |
| 27 | Total column isoprene | tc\_c5h8 | kgm-2 |
| 28 | Total column methane | tc\_ch4 | kgm-2 |
| 29 | Total column nitric aci d | tc\_hno3 | kgm-2 |
| 30 | Total column nitrogen dioxide | tcno2 | kgm-2 |
| 31 | Total column nitrogen monoxide | tc\_no | kgm-2 |
| 32 | Total column ozone | gtco3 | kgm-2 |
| 33 | Total column peroxyacetyl nitrate | tc\_pan | kgm-2 |
| 34 | Total column propane | tc\_c3h8 | kgm-2 |
| 35 | Total column sulphur dioxide | tcs02 | kgm-2 |
| 36 | Total column water vapour | tcwv | kgm-2 |

List of multi-level variables from CAMS

These variables are expressed as mass mixing ratio at different model levels expressed in kgkg-1.

|  |  |  |  |
| --- | --- | --- | --- |
| S.N. | Full name | Short name | Unit |
| 1 | Carbon monoxide | co | kgkg-1 |
| 2 | Dust aerosol (0.03-0.55 µm) mixing ratio | aermr04 | kgkg-1 |
| 3 | Dust aerosol (0.55-0.9 µm) mixing ratio | aermr05 | kgkg-1 |
| 4 | Dust aerosol (0.9-20 µm) mixing ratio | aermr06 | kgkg-1 |
| 5 | Ethane | c2h6 | kgkg-1 |
| 6 | Formaldehyde | hcho | kgkg-1 |
| 7 | Hydrogen peroxide | h202 | kgkg-1 |
| 8 | Hydrophilic black carbon aerosol mixing ratio | aermr09 | kgkg-1 |
| 9 | Hydrophilic organic matter aerosol mixing rario | aermr07 | kgkg-1 |
| 10 | Hydrophobic black carbon aerosol mixing ratio | aermr10 | kgkg-1 |
| 11 | Hydrophobic organic matter aerosol mixing ratio | aermr08 | kgkg-1 |
| 12 | Hydroxyl radical | oh | kgkg-1 |
| 13 | Isoprene | c5h8 | kgkg-1 |
| 14 | Nitric aci d | hno3 | kgkg-1 |
| 15 | Nitrogen dioxide | no2 | kgkg-1 |
| 16 | Nitrogen monoxide | no | kgkg-1 |
| 17 | Ozone | go3 | kgkg-1 |
| 18 | Peroxyacetyl nitrate | pan | kgkg-1 |
| 19 | Propane | c3h8 | kgkg-1 |
| 20 | Sea salt aerosol (0.03- 0.5 µm) mixing ratio | aermr01 | kgkg-1 |
| 21 | Sea salt aerosol (0.5- 5 µm) mixing ratio | aermr02 | kgkg-1 |
| 22 | Sea salt aerosol (5- 20 µm) mixing ratio | aermr03 | kgkg-1 |
| 23 | Specific humidity | q | kgkg-1 |
| 24 | Sulphate aerosol mixing ratio | aermr11 | kgkg-1 |
| 25 | Sulphur dioxide | so2 | kgkg-1 |
| 26 | Temperature | t | Kelvin |

**CAMS global reanalysis (EAC4) monthly averaged fields**

These variables are available as one month average.

Single level

|  |  |  |  |
| --- | --- | --- | --- |
| **S.N.** | **Full name** | **Short name** | **Unit** |
| 1 | 2m dewpoint temperature | d2m |  |
| 2 | 2m temperature | t2m |  |
| 3 | Black carbon aerosol optical depth at 550 nm | bcaod550 |  |
| 4 | Charnock | chnk |  |
| 5 | Dust aerosol optical depth at 550 nm | duaod550 |  |
| 6 | Ice temperature layer 1 |  |  |
| 7 | Leaf area index, high vegetation | lai\_hv |  |
| 8 | Leaf area index, low vegetation | lai\_lv |  |
| 9 | Mean sea level pressure | msl |  |
| 10 | Organic matter aerosol optical depth at 550 nm | omaod550 |  |
| 11 | Particulate matter d < 2.5 µm (PM2.5) | pm2p5 |  |
| 12 | Particulate matter d < 10 µm (PM10) | pm10 |  |
| 13 | Sea salt aerosol optical depth at 550 nm | ssaod550 |  |
| 14 | Sea surface temperature | sst |  |
| 15 | Sea-ice cover | siconc |  |
| 16 | Snow albedo | asn |  |
| 17 | Snow density | rsn |  |
| 18 | Snow depth | sd |  |
| 19 | Soil temperature level 1 |  |  |
| 20 | Sulphate aerosol optical depth at 550 nm | suaod550 |  |
| 21 | Surface pressure | sp |  |
| 22 | Temperature of snow layer | tsn |  |
| 23 | Total aerosol optical depth at 550 nm | aod550 |  |
| 24 | Total column carbon monoxide | tcco |  |
| 25 | Total column ethane | tc\_c2h6 |  |
| 26 | Total column formaldehyde | tchcho |  |
| 27 | Total column hydroxyl radical | tc\_oh |  |
| 28 | Total column isoprene | tc\_c5h8 |  |
| 29 | Total column methane | tc\_ch4 |  |
| 30 | Total column nitric aci d | tc\_hno3 |  |
| 31 | Total column nitrogen dioxide | tcno2 |  |
| 32 | Total column nitrogen monoxide | tc\_no |  |
| 33 | Total column ozone | gtco3 |  |
| 34 | Total column peroxyacetyl nitrate | tc\_pan |  |
| 35 | Total column propane | tc\_c3h8 |  |
| 36 | Total column sulphur dioxide | tcso2 |  |
| 37 | Total column water | tcw |  |
| 38 | Total column water vapour | tcwv |  |
| 39 | Vertically integrated mass of dust aerosol (0.03 -0.55 µm) | aernssdus |  |
| 40 | Vertically integrated mass of dust aerosol (0.55 -9 µm) | aermssdum |  |
| 41 | Vertically integrated mass of dust aerosol (9 - 20 µm) | aermssdul |  |
| 42 | Vertically integrated mass of hydrophilic black carbon aerosol | aermssbchphil |  |
| 43 | Vertically integrated mass of hydrophilic organic matter aerosol | aermssomhphil |  |
| 44 | Vertically integrated mass of hydrophobic black carbon aerosol | aermssbchphob |  |
| 45 | Vertically integrated mass of hydrophobic organic matter aerosol | aermssomhphob |  |
| 46 | Vertically integrated mass of sea salt aerosol (0.03- 0.5 µm) | aermssss |  |
| 47 | Vertically integrated mass of sea salt aerosol (0.5- 5µm) | aermssssm |  |
| 48 | Vertically integrated mass of sea salt aerosol (5-20 µm) | aermssssl |  |
| 49 | Vertically integrated mass of sulphate aerosol | aermsssu |  |
| 50 | Vertically integrated mass of sulphur dioxide | aermssso2 |  |

Multi-level

|  |  |  |  |
| --- | --- | --- | --- |
| S.N. | Full name | Short name | Unit |
| 1 | Carbon monoxide | co |  |
| 2 | Dust aerosol (0.03-0.55 µm) mixing ratio | aermr04 |  |
| 3 | Dust aerosol (0.55-0.9 µm) mixing ratio | aermr05 |  |
| 4 | Dust aerosol (0.9 - 20 µm) mixing ratio | aermr05 |  |
| 5 | Ethane | c2h6 |  |
| 6 | Formaldehyde | hcho |  |
| 7 | Geopotential |  |  |
| 8 | Hydrophilic black carbon aerosol mixing ratio | aermr09 |  |
| 9 | Hydrophilic organic matter aerosol mixing ratio | aermr07 |  |
| 10 | Hydrophobic black carbon aerosol mixing ratio | aermr10 |  |
| 11 | Hydrophobic organic matter aerosol mixing ratio | aermr08 |  |
| 12 | Hydroxyl radical | oh |  |
| 13 | Isoprene | c5h8 |  |
| 14 | Methane (chemistry) | ch4\_c |  |
| 15 | Nitric aci d | hno3 |  |
| 16 | Nitrogen dioxide | no2 |  |
| 17 | Nitrogen monoxide | no |  |
| 18 | Ozone | go3 |  |
| 19 | Peroxyacetyl nitrate | pan |  |
| 20 | Potential vorticity |  |  |
| 21 | Propane | c3h8 |  |
| 22 | Relative humidity |  |  |
| 23 | Sea salt aerosol (0.03-0.5 µm) | aermr01 |  |
| 24 | Sea salt aerosol (0.5-5 µm) | aermr02 |  |
| 25 | Sea salt aerosol (5-20 µm) | aermr03 |  |
| 26 | SO2 precursor mixing ratio | aermr12 |  |
| 27 | Specific humidity |  |  |
| 28 | Sulphate aerosol mixing ratio | aermr11 |  |
| 29 | Sulfhur dioxide | so2 |  |
| 30 | Temperature |  |  |
| 31 | Vertical velocity |  |  |