

cesar_surface_flux_lb1_t10

History

Version	Date	Description
1.0	28-jan-2010	Creation
1.0	17-mar-2012	QNBAL had missing values for 201012 - 201202, now filled with data.
1.0	31-jan-2013	USTPR now calculated with roughness length of Beljaars (1988).

Documentation on the CESAR in-situ observational program in general and the parameters in this dataset in particular can be downloaded as a pdf-file from:

http://projects.knmi.nl/cabauw/insitu/observations/documentation/Cabauw_TR/Cabauw_TR.pdf

For easy access it is advised to open the document with the navigation panel visible.

For gapfilled datasets (lcl) also consult the pdf file at:

http://projects.knmi.nl/cabauw/insitu/observations/documentation/gapfilling/cabcon_gapfilling.pdf

Further information including near real time display can be found via:

<http://projects.knmi.nl/cabauw/insitu/index2.htm>

Below follows a header dump of one of the NetCdf dataset files.
Refer to the attribute long_name of the variables for explanation.

>>>> Header dump of NetCdf file <<<<<<

```
netcdf test {
dimensions:
    time = UNLIMITED ; // (144 currently)
    nv = 2 ;
    day_in_time_interval = 1 ;
variables:
    char iso_dataset ;
        iso_dataset:hierarchyLevel = "dataset" ;
        iso_dataset:url = "http://www.cesar-database.nl" ;
        iso_dataset:protocol = "website" ;
        iso_dataset:topic = "climatologyMeteorologyAtmosphere" ;
        iso_dataset:westbound_longitude = "4.926" ;
        iso_dataset:eastbound_longitude = "4.926" ;
        iso_dataset:southbound_latitude = "51.97" ;
        iso_dataset:northbound_latitude = "51.97" ;
        iso_dataset:datasetDateType = "publication" ;
        iso_dataset:code = "28992" ;
        iso_dataset:codeSpace = "EPSG" ;
        iso_dataset:accessConstraints = "CESAR data policy" ;
        iso_dataset:useLimitation = "None" ;
        iso_dataset:organisationName_dataset = "Royal Netherlands Meteorological Institut
e (KNMI)" ;
        iso_dataset:email_dataset = "fred.bosveld@knmi.nl" ;
        iso_dataset:role_dataset = "Principle Investigator" ;
        iso_dataset:organisationName_metadata = "Royal Netherlands Meteorological Institu
te (KNMI)" ;
        iso_dataset:role_metadata = "Principle Investigator" ;
        iso_dataset:email_metadata = "fred.bosveld@knmi.nl" ;
        iso_dataset:url_metadata = "http://www.knmi.nl/~bosveld" ;
        iso_dataset:metadataDateType = "creation" ;
        iso_dataset:language = "eng" ;
        iso_dataset:metadataStandardName = "ISO-19115" ;
        iso_dataset:metadataStandardNameVersion = "Nederlands profiel op ISO 19115 voor g
eografie, vl.2" ;
        iso_dataset:title = "CESAR surface fluxes, validated" ;
        iso_dataset:abstract = "Surface fluxes of net radiation, momentum, sensible heat,
latent heat, soil heat and carbon dioxide at Cabauw at 10 minute time base, validated" ;
        iso_dataset:status = "onGoing" ;
        iso_dataset:uid_dataset = "fff8e32c-0dbf-11df-8a39-0800200c9a66" ;
        iso_dataset:keyword = "flux temperature humidity momentum carbon dioxide soil hea
t radiation" ;
        iso_dataset:temporal_extent = "2000-08-01,onGoing" ;
        iso_dataset:date = "2010-01-28" ;
        iso_dataset:statement = "Continuous observations are performed and archived. The
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data product is published in monthly intervals.ÿ" ;
    iso_dataset:metadata_id = "3b868460-0dd9-11df-8a39-0800200c9a66" ;
    iso_dataset:datestamp = "2010-01-28" ;
char product ;
    product:format_version = "netCDF,3.6" ;
    product:originator = "Bosveld, F.C., KNMI" ;
    product:software_version = "see http://www.knmi.nl/~bosveld -> software -> Mobiba
se" ;
    product:command_line = " ncselect.x cabsurf b10 [M]cesar,[O]cesar_surface_flux_lb
1_t10_v1.0 20100228 -f/usr/people/bosveld/CDS/test.nc" ;
    product:date_start_of_data = "2010-02-28T00:00Z" ;
    product:date_end_of_data = "2010-02-28T23:59Z" ;
    product:revision_date = "2018-10-31" ;
    product:ref_doc = "cesar_surface_flux_lb1_t10_v1.0.pdf" ;
    product:ref_doc_version = "v1.0" ;
char station_details ;
    station_details:name = "CESAR observatory" ;
    station_details:latitude = "51.97" ;
    station_details:longitude = "4.926" ;
    station_details:elevation = "-0.7" ;
    station_details:WMO_id = "06348" ;
    station_details:address = "Zijdweg 1" ;
    station_details:postal_code = "3411 MH" ;
    station_details:city = "Lopik" ;
    station_details:administration_area = "Utrecht" ;
    station_details:country = "the Netherlands" ;
float time(time) ;
    time:units = "hours since 2010-02-28 00:00:00 0:00" ;
    time:long_name = "hours since 2010-02-28 00:00:00 (UTC)" ;
    time:standard_name = "time" ;
    time:axis = "T" ;
    time:bounds = "time_bnds" ;
int date(time) ;
    date:long_name = "yyyymmdd" ;
byte valid_dates(day_in_time_interval) ;
    valid_dates:comment = "indicates whether any data are included for a particular d
ay: 0=none, 1=data, index runs from date indicated by \"units\" attribute of the time variable" ;
float time_bnds(time, nv) ;
float USTED(time) ;
    USTED:units = "m s-1" ;
    USTED:long_name = "Friction velocity 3/5 m along wind, tilt and lowfreq corr" ;
    USTED:accuracy = "10%" ;
    USTED:_FillValue = -9999.f ;
    USTED:cell_methods = "time: mean" ;
float FCED(time) ;
    FCED:units = "mg m-2 s-1" ;
    FCED:long_name = "CO2 density flux Webb corrected" ;
    FCED:accuracy = "10%" ;
    FCED:_FillValue = -9999.f ;
    FCED:cell_methods = "time: mean" ;
float HSON(time) ;
    HSON:units = "W m-2" ;
    HSON:long_name = "Sensible heat flux from sonic temperature corrected 3/5 m" ;
    HSON:standard_name = "surface_upward_sensible_heat_flux" ;
    HSON:accuracy = "10%" ;
    HSON:_FillValue = -9999.f ;
    HSON:cell_methods = "time: mean" ;
float LEED(time) ;
    LEED:units = "W m-2" ;
    LEED:long_name = "Latent heat flux corrected 3/5 m" ;
    LEED:standard_name = "surface_upward_latent_heat_flux" ;
    LEED:accuracy = "10%" ;
    LEED:_FillValue = -9999.f ;
    LEED:cell_methods = "time: mean" ;
float FG0(time) ;
    FG0:units = "W m-2" ;
    FG0:long_name = "Soil heat flux at 0 cm, Fourier extrapolation G05,G10" ;
    FG0:standard_name = "downward_heat_flux_at_ground_level_in_soil" ;
    FG0:accuracy = "10%10" ;
    FG0:_FillValue = -9999.f ;
    FG0:cell_methods = "time: mean" ;
float QNBAL(time) ;
    QNBAL:units = "W m-2" ;
    QNBAL:long_name = "Net radiation from radiation balance SWD-SWU+LWD-LWU" ;

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        QNBAL:accuracy = "5%10" ;
        QNBAL:_FillValue = -9999.f ;
        QNBAL:cell_methods = "time: mean" ;
float USTAB(time) ;
        USTAB:units = "m s-1" ;
        USTAB:long_name = "Friction velocity 3/5 m abs stress, tilt and lowfreq corr" ;
        USTAB:accuracy = "10%" ;
        USTAB:_FillValue = -9999.f ;
        USTAB:cell_methods = "time: mean" ;
float USTPR(time) ;
        USTPR:units = "m s-1" ;
        USTPR:long_name = "Friction velocity from F010 and HSON (regional scale)" ;
        USTPR:accuracy = "10%" ;
        USTPR:_FillValue = -9999.f ;
        USTPR:cell_methods = "time: mean" ;
float WTV(time) ;
        WTV:units = "K m s-1" ;
        WTV:long_name = "Sonic temperature flux (almost virtual temperature flux)" ;
        WTV:accuracy = "10%" ;
        WTV:_FillValue = -9999.f ;
        WTV:cell_methods = "time: mean" ;
float FFSN(time) ;
        FFSN:units = "m s-1" ;
        FFSN:long_name = "Sonic wind speed 3/5 m" ;
        FFSN:_FillValue = -9999.f ;
        FFSN:cell_methods = "time: mean" ;

// global attributes:
        :institution = "Royal Netherlands Meteorological Institute (KNMI)" ;
        :comment = "none" ;
        :Conventions = "CF-1.4" ;
        :location = "CESAR observatory, the Netherlands" ;
        :file_creation_date_time = "20181031 16:17:53 (UTC)" ;
        :history = "Continuous observations are performed and archived. The data product
is published in monthly intervals.ÿ" ;
        :references = "cesar_surface_flux_lb1_t10_v1.0.pdf @ http://www.cesar-database.nl
" ;
}

```