Lecce file description

**Available data**: Drop Size distribution measured by Thies Clima Laser Precipitation Monitor at ISAC-Lecce each 1 minute, average wind speed (in m s-1) measured by weather station at ISAC-Lecce each 1 minute and average wind speed (in m s-1) measured by weather station on the Adriatic coast (Brindisi) each 60 minutes.

**Output data**: dateTime, precipitation\_flux, rainfall, rainfall\_mm\_hr, dsd (in 22 diameter classes), dvd (in 20 diameter classes), svd (in 440 diameter-velocity bins), vel\_avg (in 22 diameter classes), wind\_avg (at ISAC\_Lecce), wind\_avg\_sea (at Brindisi site only for 60 min aggregation time). Data have a time resolution of 1, 10, 30 and 60 minutes.

* *dateTime* represents the beginning of the time interval
* *precipitation\_flux* is computed as follow:
* *rainfall* is the cumulated amount of precipitated water in mm and is computed as follow:
* *rainfall\_mm\_hr* is the rainfall rate (R) in mm h-1 and is computed from the Drop Size Distribution as follow

where A is the Thies Clima measuring area (0.0046 m2), Δt is the integration time in seconds (can be 1, 10, 30, 60 minutes), ΔD is the diameter class widths of the Thies Clima disdrometer and v(D) is the Atlas and Ulbrich (1973) theoretical fall velocity computed with the following relation:

* *dsd* is the number of drops in each of the 22 diameter bin. It is obtained with the sum of the particle collected by Thies Clima disdrometer in 1, 10, 30 or 60 minutes.
* *dvd* is the number of drops in each of the 20 velocity bin. It is obtained with the sum of the particle collected by Thies Clima disdrometer in 1, 10, 30 or 60 minutes.
* *svd* is the disdrometer rwa data for 1 minutes and for 10, 30, and 60 minutes id the sum of the particle collected in the given time interval
* *vel\_avg* is the mean drop falling velocity (in m s-1)
* *wind\_avg* is the mean value of wind speed (in m s-1) in the Δt interval. Please note that for Δt equal to 10, 30 or 60 minutes if one the 1-minute values in this interval in not provided (i.e. it is NaN) the corresponding 10, 30 or 60 minutes value is NaN.
* *wind\_avg\_sea* is the same of *wind\_avg* but only for 60 minutes integration because the data have been collected by a weather station with 30 minutes resolution. The weather station is in Brindisi, near the coast.

NOTE: two versions of 1-, 10-, 30-, and 60-minutes file have been provided. One for no filtered data and one for filtered data. In the first case, any filtering has been performed and the raw disdrometer count matrix (i.e. the matrix with the number of hydrometeors collected in each diameter-fall velocity bin) has been used for the analysis. While, in the second case, the following mask has been used to filter out spurious drops from the measured count matrix.

Immagine che contiene diagramma, linea, Diagramma, testo

Descrizione generata automaticamente