

Command Reference: Cumulate()

Convert time series data values to cumulative values

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The `Cumulate()` command converts a time series into cumulative values, which is useful for comparing the cumulative trends of related time series (e.g., nearby gages or precipitation gages) and can serve as a substitute for the double-mass graph, which has difficulty handling missing data. It is also useful to check the mass balance when routing time series (the cumulative values before and after routine will track closely). The following dialog is used to edit the command and illustrates the syntax of the command.

Edit Cumulate() Command

The selected time series will be converted to cumulative values over the period.
The units remain the original.
Specify a Reset value of 0000-MM-DD to reset the total to zero on MM-DD of each year (**UNDER DEVELOPMENT**)

TS list: **AllTS** Indicates the time series to process (default=AllTS).

TSID (for TSList=AllMatchingTSID):

EnsembleID (for TSList=EnsembleID):

Handle missing data how?: **CarryForwardIfMissing** Default (blank) is to set missing.

Reset date/time: Date/day/time on which to reset to zero (specify zeros for year).

Command: `Cumulate(TSList=AllTS,HandleMissingHow=CarryForwardIfMissing)`

Cancel OK

Cumulate

Cumulate() Command Editor

The command syntax is as follows:

`Cumulate (Parameter=Value,...)`

Command Parameters

Parameter	Description	Default
TSList	Indicates the list of time series to be processed, one of: <ul style="list-style-type: none">AllMatchingTSID – all time series that match the TSID (single TSID or TSID with wildcards) will be modified.AllTS – all time series before the command.EnsembleID – all time series in the ensemble will be modified.LastMatchingTSID – the last time series that matches the TSID (single TSID or TSID with wildcards) will be modified.SelectedTS – the time series are those selected with the <code>SelectTimeSeries()</code> command.	AllTS
TSID	The time series identifier or alias for the time series to be modified, using the * wildcard character to match multiple time series.	TSID or EnsembleID must be specified.

Parameter	Description	Default
EnsembleID	The ensemble to be modified, if processing an ensemble.	TSID or EnsembleID must be specified.
Handle Missing How	Indicate how to handle missing data, one of: <ul style="list-style-type: none"> CarryForwardIfMissing – carry forward the last non-missing value SetMissingIfMissing – set the result to missing if the original value is missing. <p>The only difference in output is that the period of missing data will either be blank or a horizontal line in graphs.</p>	SetMissingIfMissing
Reset	A MM-DD date, day (1-31), or month (1-12) indicating when to reset the cumulative value to zero, before beginning to cumulate again. The features of this parameter are under development.	Do not reset.

A sample command file to cumulate times from the State of Colorado's HydroBase is as follows:

```
# 1458 - CENTER 4 SSW
1458.NOAA.Precip.Month~HydroBase
# 2184 - DEL NORTE 2 E
2184.NOAA.Precip.Month~HydroBase
Cumulate(TSList=AllTS,HandleMissingHow=CarryForwardIfMissing)
```

The following graph illustrates cumulative data for two precipitation gages in the same region, where missing data results in carrying forward the last known value.

