Command Reference: ComputeErrorTimeSeries()

Compute the error between time series and create new time series for the results

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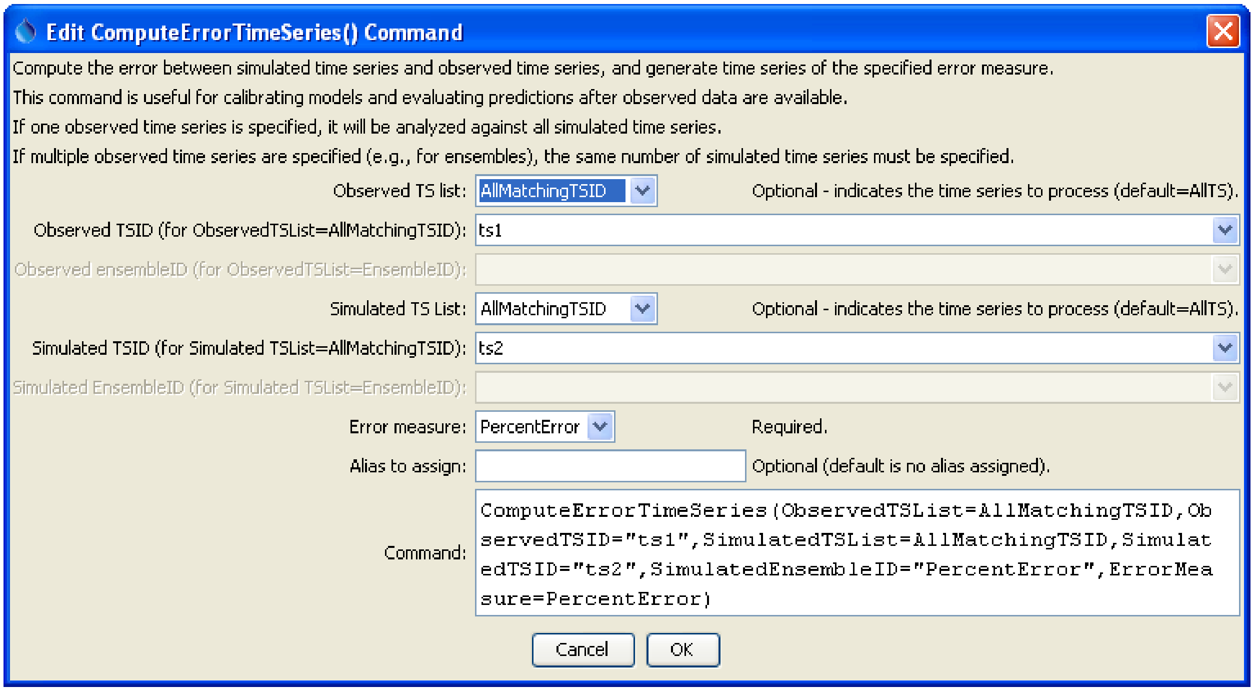
The `ComputeErrorTimeSeries()` command computes the error between two time series as absolute value or percent, creating a new time series for each pair of time series that is compared. This is useful for comparing observed and simulated time series. The time series that are created have the simulated time series' metadata but an alias can be assigned. The command can be used to process multiple pairs of time series, each determined using the appropriate `*TSList` parameter.

The following dialog is used to edit the command and illustrates the command syntax.



Compute the error between simulated time series and observed time series, and generate time series of the specified error measure.
This command is useful for calibrating models and evaluating predictions after observed data are available.
If one observed time series is specified, it will be analyzed against all simulated time series.
If multiple observed time series are specified (e.g., for ensembles), the same number of simulated time series must be specified.

Observed TS list: AllMatchingTSID — Optional - indicates the time series to process (default=AllTS).
Observed TSID (for ObservedTSList=AllMatchingTSID): ts1
Observed ensembleID (for ObservedTSList=EnsembleID):
Simulated TS List: AllMatchingTSID — Optional - indicates the time series to process (default=AllTS).
Simulated TSID (for Simulated TSList=AllMatchingTSID): ts2
Simulated EnsembleID (for Simulated TSList=EnsembleID):
Error measure: PercentError — Required.
Alias to assign: — Optional (default is no alias assigned).
Command:

```
ComputeErrorTimeSeries(ObservedTSList=AllMatchingTSID,ObservedTSID="ts1",SimulatedTSList=AllMatchingTSID,SimulatedTSID="ts2",SimulatedEnsembleID="PercentError",ErrorMeasure=PercentError)
```

ComputeErrorTimeSeries

ComputeErrorTimeSeries() Command Editor

The command syntax is as follows:

```
ComputeErrorTimeSeries(Parameter=Value,…)
```

Command Parameters

Parameter	Description	Default
`Observed TSList`	Indicates the list of observed time series to be processed, one of: • `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	`AllTS`

Parameter	Description	Default
	compared. • LastMatchingTSID – the last time series that matches the TSID (single TSID or TSID with wildcards) will be compared. • SelectedTS – the time series are those selected with the SelectTimeSeries() command.	
ObservedTSID	The time series identifier or alias for the observed time series, using the * wildcard character to match multiple time series.	Use when ObservedTSList= *MatchingTSID.
ObservedEnsembleID	The observed ensemble to be compared, if processing an ensemble.	Use when ObservedTSList= EnsembleID.
SimulatedTSList	Indicates how to determine the list of simulated time series (see the explanation of ObservedTSList).	AllTS
SimulatedTSID	The time series identifier or alias for the simulated time series (see the explanation of ObservedTSID).	Use when SimulatedTSList= *MatchingTSID.
SimulatedEnsembleID	The ensemble identifier for the simulated time series (see the explanation of SimulatedEnsembleID).	Use when SimulateddTSList= EnsembleID
ErrorMeasure	The error measure to compute, one of: • PercentError – Simulated minus observed, divided by observed. • AbsoluteError – not yet implemented.	
Alias	The alias to be assigned to each trace in the ensemble. The string can include: • % specifiers from the LegendFormat property (see the **TSView Time Series Viewing Tools** appendix). • ${Property} strings, where Property is a value set internally by the command processor (more documentation will be provided in the future) or with the SetProperty() command. This approach is useful if the TSTool command file is dynamically created with a script. • Any literal characters.	None.

A sample command file is as follows (in this case using contrived data):

```
RemoveFile(InputFile="Results\Test_ComputeErrorTimeSeries_1_out.dv",WarnIfMissing=False)
TS ts1 = NewPatternTimeSeries(NewTSID="ts1..test.Day",Description="Test data",
  SetStart="1950-01-01",SetEnd="1951-03-12",Units="CFS",PatternValues="5,10,12,13,75")
TS ts2 = NewPatternTimeSeries(NewTSID="ts2..test.Day",Description="Test data",
  SetStart="1950-01-01",SetEnd="1951-03-12",Units="CFS",PatternValues="6,12,14,11.5,80")
ComputeErrorTimeSeries(ObservedTSList=AllMatchingTSID,ObservedTSID="ts1",
  SimulatedTSList=AllMatchingTSID,SimulatedTSID="ts2",ErrorMeasure=PercentError)
# Uncomment the following command to regenerate the expected results file.
# WriteDateValue(OutputFile="ExpectedResults\Test_ComputeErrorTimeSeries_1_out.dv")
WriteDateValue(OutputFile="Results\Test_ComputeErrorTimeSeries_1_out.dv")
CompareFiles(InputFile1="Results\Test_ComputeErrorTimeSeries_1_out.dv",
 InputFile2="ExpectedResults\Test_ComputeErrorTimeSeries_1_out.dv",WarnIfDifferent=True)
```