

Gradient Transformations

With this transformation a gradient of a timeserie can be calculated: $(y_1 - y_0) / (t_1 - t_0)$. This is the change in the value per time unit (currently seconds).

Timeseries can be nonequidistant.

```
<transformation id="Calculate_the_gradient">
  <gradient>
    <firstOrder>
      <inputVariable>
        <variableId>InputTimeSeries</variableId>
      </inputVariable>
      <outputVariable>
        <variableId>OutputTimeSeries</variableId>
      </outputVariable>
    </firstOrder>
  </gradient>
</transformation>
```

Example:

```
<variable>
  <variableId>niveau_5.nonequiAB</variableId>
  <timeSeriesSet>
    <moduleInstanceId>ABBAberekening</moduleInstanceId>
    <valueType>scalar</valueType>
    <parameterId>ALMR006</parameterId>
    <locationSetId>ABBA_vuldebiet</locationSetId>
    <timeSeriesType>external historical</timeSeriesType>
    <timeStep unit="nonequidistant"/>
    <relativeViewPeriod unit="day" start="-7" end="0" startOverrutable="true"
endOverrutable="true"/>
    <readWriteMode>add originals</readWriteMode>
  </timeSeriesSet>
</variable>
<variable>
  <variableId>stijging.nonequi</variableId>
  <timeSeriesSet>
    <moduleInstanceId>ABBAberekening</moduleInstanceId>
    <valueType>scalar</valueType>
    <parameterId>stijging_niveaumeter</parameterId>
    <locationSetId>ABBA_vuldebiet</locationSetId>
    <timeSeriesType>external historical</timeSeriesType>
    <timeStep unit="nonequidistant"/>
    <relativeViewPeriod unit="day" start="-6" end="0" startOverrutable="true"
endOverrutable="true"/>
    <readWriteMode>add originals</readWriteMode>
  </timeSeriesSet>
</variable>
<transformation id="stijging_niveaumeter">
  <gradient>
    <firstOrder>
      <inputVariable>
        <variableId>niveau_5.nonequiAB</variableId>
      </inputVariable>
      <outputVariable>
        <variableId>stijging.nonequi</variableId>
      </outputVariable>
    </firstOrder>
  </gradient>
</transformation>
```

