

# KiWIS Requests and Responses

## Example Requests and Responses.

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## SOS Get Capabilities

<http://hydro-sos.niwa.co.nz/?datasource=0&service=SOS&version=2.0&request=GetCapabilities>

```
<?xml version="1.0" ?>
<sos:Capabilities version="2.0.0"
  xsi:schemaLocation="http://www.opengis.net/sos/2.0 http://schemas.opengis.net/sos/2.0/sos.xsd"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:wsa="http://www.w3.org/2005/08/addressing" xmlns:swe="http://www.opengis.net/swe/2.0"
  xmlns:swes="http://www.opengis.net/swes/2.0" xmlns:ows="http://www.opengis.net/ows/1.1"
  xmlns:sos="http://www.opengis.net/sos/2.0" xmlns:fes="http://www.opengis.net/fes/2.0"
  xmlns:gml="http://www.opengis.net/gml/3.2" xmlns:ogc="http://www.opengis.net/ogc"
  xmlns:xlink="http://www.w3.org/1999/xlink">
  <ows:ServiceIdentification>
    <ows:Title>KISTERS KiWIS SOS2</ows:Title>
    <ows:ServiceType>SOS</ows:ServiceType>
    <ows:ServiceTypeVersion>2.0.0</ows:ServiceTypeVersion>
    <ows:Profile>http://www.opengis.net/spec/SOS/2.0/conf/core</ows:Profile>
    <ows:Profile>http://www.opengis.net/spec/SOS/2.0/conf/soap</ows:Profile>
    <ows:Profile>http://www.opengis.net/spec/SOS/2.0/conf/kvp-core</ows:Profile>
    <ows:Profile>http://www.opengis.net/spec/SOS/2.0/conf/foiRetrieval</ows:Profile>
    <ows:Profile>http://www.opengis.net/spec/SOS/2.0/conf/daRetrieval</ows:Profile>
    <ows:Profile>http://www.opengis.net/spec/SOS/2.0/conf/xml</ows:Profile>
    <ows:Profile>http://www.opengis.net/spec/SOS_application-profile_hydrology/1.0/req/hydrosos</ows:
Profile>
    <ows:AccessConstraints>maxNumberOfReturnedValues=250000</ows:AccessConstraints>
    <ows:AccessConstraints>maxNumberOfReturnedTimeSeries=2500</ows:AccessConstraints>
  </ows:ServiceIdentification>
  <ows:ServiceProvider>
    <ows:ProviderName>NIWA</ows:ProviderName>
    <ows:ProviderSite xlink:href="http://www.niwa.co.nz"/>
    <ows:ServiceContact>
      <ows:IndividualName>Jochen Schmidt</ows:IndividualName>
      <ows:PositionName>Chief Scientist - Environmental Information</ows:PositionName>
      <ows:ContactInfo>
        <ows:Phone>
          <ows:Voice>03-3438058</ows:Voice>
        </ows:Phone>
        <ows:Address>
          <ows:DeliveryPoint>Street</ows:DeliveryPoint>
          <ows:City>Christchurch</ows:City>
          <ows:PostalCode>Code</ows:PostalCode>
          <ows:Country>New Zealand</ows:Country>
          <ows:ElectronicMailAddress>jochen.schmidt@niwa.co.nz</ows:ElectronicMailAddress>
        </ows:Address>
      </ows:ContactInfo>
    </ows:ServiceContact>
  </ows:ServiceProvider>
  <ows:OperationsMetadata>
    <ows:Operation name="DescribeSensor">
      <ows:DCP>
        <ows:HTTP>
          <ows:Get xlink:href="http://hydro-sos.niwa.co.nz/KiWIS/KiWIS?datasource=0">
            <ows:Constraint name="Content-Type">
              <ows:AllowedValues>
```

```

        <ows:Value>application/x-kvp</ows:Value>
      </ows:AllowedValues>
    </ows:Constraint>
  </ows:Get>
  <ows:Post xlink:href="http://hydro-sos.niwa.co.nz/KiWIS/KiWIS?datasource=0">
    <ows:Constraint name="Content-Type">
      <ows:AllowedValues>
        <ows:Value>application/soap+xml</ows:Value>
        <ows:Value>application/xml</ows:Value>
      </ows:AllowedValues>
    </ows:Constraint>
  </ows:Post>
</ows:HTTP>
</ows:DCP>
</ows:Operation>
<ows:Operation name="GetCapabilities">
  <ows:DCP>
    <ows:HTTP>
      <ows:Get xlink:href="http://hydro-sos.niwa.co.nz/KiWIS/KiWIS?datasource=0">
        <ows:Constraint name="Content-Type">
          <ows:AllowedValues>
            <ows:Value>application/x-kvp</ows:Value>
          </ows:AllowedValues>
        </ows:Constraint>
      </ows:Get>
      <ows:Post xlink:href="http://hydro-sos.niwa.co.nz/KiWIS/KiWIS?datasource=0">
        <ows:Constraint name="Content-Type">
          <ows:AllowedValues>
            <ows:Value>application/soap+xml</ows:Value>
            <ows:Value>application/xml</ows:Value>
          </ows:AllowedValues>
        </ows:Constraint>
      </ows:Post>
    </ows:HTTP>
  </ows:DCP>
</ows:Operation>
<ows:Operation name="GetDataAvailability">
  <ows:DCP>
    <ows:HTTP>
      <ows:Get xlink:href="http://hydro-sos.niwa.co.nz/KiWIS/KiWIS?datasource=0">
        <ows:Constraint name="Content-Type">
          <ows:AllowedValues>
            <ows:Value>application/x-kvp</ows:Value>
          </ows:AllowedValues>
        </ows:Constraint>
      </ows:Get>
      <ows:Post xlink:href="http://hydro-sos.niwa.co.nz/KiWIS/KiWIS?datasource=0">
        <ows:Constraint name="Content-Type">
          <ows:AllowedValues>
            <ows:Value>application/soap+xml</ows:Value>
            <ows:Value>application/xml</ows:Value>
          </ows:AllowedValues>
        </ows:Constraint>
      </ows:Post>
    </ows:HTTP>
  </ows:DCP>
</ows:Operation>
<ows:Operation name="GetFeatureOfInterest">
  <ows:DCP>
    <ows:HTTP>
      <ows:Get xlink:href="http://hydro-sos.niwa.co.nz/KiWIS/KiWIS?datasource=0">
        <ows:Constraint name="Content-Type">
          <ows:AllowedValues>
            <ows:Value>application/x-kvp</ows:Value>
          </ows:AllowedValues>
        </ows:Constraint>
      </ows:Get>
      <ows:Post xlink:href="http://hydro-sos.niwa.co.nz/KiWIS/KiWIS?datasource=0">
        <ows:Constraint name="Content-Type">
          <ows:AllowedValues>
            <ows:Value>application/soap+xml</ows:Value>
          </ows:AllowedValues>
        </ows:Constraint>
      </ows:Post>
    </ows:HTTP>
  </ows:DCP>
</ows:Operation>

```

```

        <ows:Value>application/xml</ows:Value>
      </ows:AllowedValues>
    </ows:Constraint>
  </ows:Post>
</ows:HTTP>
</ows:DCP>
</ows:Operation>
<ows:Operation name="GetObservation">
  <ows:DCP>
    <ows:HTTP>
      <ows:Get xlink:href="http://hydro-sos.niwa.co.nz/KiWIS/KiWIS?datasource=0">
        <ows:Constraint name="Content-Type">
          <ows:AllowedValues>
            <ows:Value>application/x-kvp</ows:Value>
          </ows:AllowedValues>
        </ows:Constraint>
      </ows:Get>
      <ows:Post xlink:href="http://hydro-sos.niwa.co.nz/KiWIS/KiWIS?datasource=0">
        <ows:Constraint name="Content-Type">
          <ows:AllowedValues>
            <ows:Value>application/soap+xml</ows:Value>
            <ows:Value>application/xml</ows:Value>
          </ows:AllowedValues>
        </ows:Constraint>
      </ows:Post>
    </ows:HTTP>
  </ows:DCP>
</ows:Operation>
<ows:Parameter name="service">
  <ows:AllowedValues>
    <ows:Value>SOS</ows:Value>
  </ows:AllowedValues>
</ows:Parameter>
<ows:Parameter name="version">
  <ows:AllowedValues>
    <ows:Value>2.0</ows:Value>
    <ows:Value>2.0.0</ows:Value>
  </ows:AllowedValues>
</ows:Parameter>
</ows:OperationsMetadata>
<fos:filterCapabilities>
  <fos:Filter_Capabilities>
    <fos:Conformance>
      <fos:Constraint name="ImplementsQuery">
        <ows:NoValues/>
        <ows:DefaultValue>>false</ows:DefaultValue>
      </fos:Constraint>
      <fos:Constraint name="ImplementsAdHocQuery">
        <ows:NoValues/>
        <ows:DefaultValue>>false</ows:DefaultValue>
      </fos:Constraint>
      <fos:Constraint name="ImplementsFunctions">
        <ows:NoValues/>
        <ows:DefaultValue>>false</ows:DefaultValue>
      </fos:Constraint>
      <fos:Constraint name="ImplementsMinStandardFilter">
        <ows:NoValues/>
        <ows:DefaultValue>>false</ows:DefaultValue>
      </fos:Constraint>
      <fos:Constraint name="ImplementsStandardFilter">
        <ows:NoValues/>
        <ows:DefaultValue>>false</ows:DefaultValue>
      </fos:Constraint>
      <fos:Constraint name="ImplementsMinSpatialFilter">
        <ows:NoValues/>
        <ows:DefaultValue>>true</ows:DefaultValue>
      </fos:Constraint>
      <fos:Constraint name="ImplementsSpatialFilter">
        <ows:NoValues/>
        <ows:DefaultValue>>true</ows:DefaultValue>
      </fos:Constraint>
    </fos:Conformance>
  </fos:Filter_Capabilities>
</fos:filterCapabilities>

```

```

<fes:Constraint name="ImplementsMinTemporalFilter">
  <ows:NoValues/>
  <ows:DefaultValue>true</ows:DefaultValue>
</fes:Constraint>
<fes:Constraint name="ImplementsTemporalFilter">
  <ows:NoValues/>
  <ows:DefaultValue>true</ows:DefaultValue>
</fes:Constraint>
<fes:Constraint name="ImplementsVersionNav">
  <ows:NoValues/>
  <ows:DefaultValue>>false</ows:DefaultValue>
</fes:Constraint>
<fes:Constraint name="ImplementsSorting">
  <ows:NoValues/>
  <ows:DefaultValue>>false</ows:DefaultValue>
</fes:Constraint>
<fes:Constraint name="ImplementsExtendedOperators">
  <ows:NoValues/>
  <ows:DefaultValue>>false</ows:DefaultValue>
</fes:Constraint>
</fes:Conformance>
<fes:Spatial_Capabilities>
  <fes:GeometryOperands>
    <fes:GeometryOperand name="gml:Point"/>
  </fes:GeometryOperands>
  <fes:SpatialOperators>
    <fes:SpatialOperator name="BBOX"/>
  </fes:SpatialOperators>
</fes:Spatial_Capabilities>
<fes:Temporal_Capabilities>
  <fes:TemporalOperands>
    <fes:TemporalOperand name="gml:TimePeriod"/>
    <fes:TemporalOperand name="gml:TimeInstant"/>
  </fes:TemporalOperands>
  <fes:TemporalOperators>
    <fes:TemporalOperator name="During"/>
    <fes:TemporalOperator name="TEquals"/>
    <fes:TemporalOperator name="After"/>
    <fes:TemporalOperator name="Before"/>
  </fes:TemporalOperators>
</fes:Temporal_Capabilities>
</fes:Filter_Capabilities>
</sos:filterCapabilities>
<sos:contents>
  <sos:Contents>
    <swes:procedureDescriptionFormat>http://www.opengis.net/sensorML/1.0.1</swes:
procedureDescriptionFormat>
    <swes:procedureDescriptionFormat>http://www.opengis.net/waterml/2.0/observationProcess</swes:
procedureDescriptionFormat>
    <swes:observableProperty>http://hydro-sos.niwa.co.nz/parameters/River level QC
3900</swes:observableProperty>
    <swes:observableProperty>http://hydro-sos.niwa.co.nz/parameters/Stage/Flow rating QC
2590</swes:observableProperty>
    <swes:observableProperty>http://hydro-sos.niwa.co.nz/parameters/River level QC
2517</swes:observableProperty>
    <swes:observableProperty>http://hydro-sos.niwa.co.nz/parameters/Rainfall QC
5994</swes:observableProperty>
    <swes:observableProperty>http://hydro-sos.niwa.co.nz/parameters/Rainfall QC
6504</swes:observableProperty>
    <swes:observableProperty>http://hydro-sos.niwa.co.nz/parameters/Stage/Flow rating QC
1867</swes:observableProperty>
    <swes:observableProperty>http://hydro-sos.niwa.co.nz/parameters/River level QC
864</swes:observableProperty>
    <swes:observableProperty>http://hydro-sos.niwa.co.nz/parameters/River level QC
1869</swes:observableProperty>
    etc
    <swes:observableProperty>http://hydro-sos.niwa.co.nz/parameters/River level QC
1605</swes:observableProperty>
    <swes:offering><sos:ObservationOffering><swes:description>Offering for timeseries type

```

```

Ratings QC
3694</swes:description><swes:identifier>http://hydro-sos.niwa.co.nz/tstypes/Ratings
QC
3694</swes:identifier><swes:name>Ratings QC 3694</swes:name><swes:
procedure>http://hydro-sos.niwa.co.nz/tstypes/Ratings
QC 3694</swes:procedure><sos:observedArea><gml:Envelope
srsName="http://www.opengis.net/def/crs/EPSSG/0/4326">
<gml:lowerCorner>-46.6519 -176.6631</gml:lowerCorner>
<gml:upperCorner>-34.9196 178.2036</gml:upperCorner>
</gml:Envelope></sos:observedArea></sos:ObservationOffering></swes:offering>
<swes:offering><sos:ObservationOffering><swes:description>Offering for timeseries type
River level QC
3696</swes:description><swes:identifier>http://hydro-sos.niwa.co.nz/tstypes/River
level QC
3696</swes:identifier><swes:name>River level QC 3696</swes:name><swes:
procedure>http://hydro-sos.niwa.co.nz/tstypes/River
level QC 3696</swes:procedure><sos:observedArea><gml:Envelope
srsName="http://www.opengis.net/def/crs/EPSSG/0/4326">
<gml:lowerCorner>-46.6519 -176.6631</gml:lowerCorner>
<gml:upperCorner>-34.9196 178.2036</gml:upperCorner>
</gml:Envelope></sos:observedArea></sos:ObservationOffering></swes:offering>
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Ratings QC
4384</swes:description><swes:identifier>http://hydro-sos.niwa.co.nz/tstypes/Ratings
QC
4384</swes:identifier><swes:name>Ratings QC 4384</swes:name><swes:
procedure>http://hydro-sos.niwa.co.nz/tstypes/Ratings
QC 4384</swes:procedure><sos:observedArea><gml:Envelope
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<gml:upperCorner>-34.9196 178.2036</gml:upperCorner>
</gml:Envelope></sos:observedArea></sos:ObservationOffering></swes:offering>
<swes:offering><sos:ObservationOffering><swes:description>Offering for timeseries type
Daily staff gauge readings QC
9687</swes:description><swes:identifier>http://hydro-sos.niwa.co.nz/tstypes/Daily
staff gauge readings QC
9687</swes:identifier><swes:name>Daily staff gauge readings QC 9687</swes:name><swes:
procedure>http://hydro-sos.niwa.co.nz/tstypes/Daily
staff gauge readings QC 9687</swes:procedure><sos:observedArea><gml:Envelope
srsName="http://www.opengis.net/def/crs/EPSSG/0/4326">
<gml:lowerCorner>-46.6519 -176.6631</gml:lowerCorner>
<gml:upperCorner>-34.9196 178.2036</gml:upperCorner>
</gml:Envelope></sos:observedArea></sos:ObservationOffering></swes:offering>
<swes:offering><sos:ObservationOffering><swes:description>Offering for timeseries type
River level QC
4386</swes:description><swes:identifier>http://hydro-sos.niwa.co.nz/tstypes/River
level QC
4386</swes:identifier><swes:name>River level QC 4386</swes:name><swes:
procedure>http://hydro-sos.niwa.co.nz/tstypes/River
level QC 4386</swes:procedure><sos:observedArea><gml:Envelope
srsName="http://www.opengis.net/def/crs/EPSSG/0/4326">
<gml:lowerCorner>-46.6519 -176.6631</gml:lowerCorner>
<gml:upperCorner>-34.9196 178.2036</gml:upperCorner>
</gml:Envelope></sos:observedArea></sos:ObservationOffering></swes:offering>
<swes:offering><sos:ObservationOffering><swes:description>Offering for timeseries type
Ratings QC
2152</swes:description><swes:identifier>http://hydro-sos.niwa.co.nz/tstypes/Ratings
QC
2152</swes:identifier><swes:name>Ratings QC 2152</swes:name><swes:
procedure>http://hydro-sos.niwa.co.nz/tstypes/Ratings
QC 2152</swes:procedure><sos:observedArea><gml:Envelope
srsName="http://www.opengis.net/def/crs/EPSSG/0/4326">
<gml:lowerCorner>-46.6519 -176.6631</gml:lowerCorner>
<gml:upperCorner>-34.9196 178.2036</gml:upperCorner>
</gml:Envelope></sos:observedArea></sos:ObservationOffering></swes:offering>
etc
<swes:offering><sos:ObservationOffering><swes:description>Offering for timeseries type
Rainfall QC
6518</swes:description><swes:identifier>http://hydro-sos.niwa.co.nz/tstypes/Rainfall

```

```
QC
6518</swes:identifier><swes:name>Rainfall QC 6518</swes:name><swes:
procedure>http://hydro-sos.niwa.co.nz/tstypes/Rainfall
QC 6518</swes:procedure><sos:observedArea><gml:Envelope
srsName="http://www.opengis.net/def/crs/EPSSG/0/4326">
<gml:lowerCorner>-46.6519 -176.6631</gml:lowerCorner>
<gml:upperCorner>-34.9196 178.2036</gml:upperCorner>
</gml:Envelope></sos:observedArea></sos:ObservationOffering></swes:offering>
<sos:responseFormat>http://www.opengis.net/waterml/2.0</sos:responseFormat>
<sos:observationType>http://www.opengis.net/def/observationType/OGC-OM/2.0/OM_Measurement</sos:
observationType>
</sos:Contents>
</sos:contents>
</sos:Capabilities>
```

## GetFeatureOfInterest

<http://hydro-sos.niwa.co.nz/?datasource=0&service=SOS&REQUEST=GetFeatureOfInterest&SERVICE=SOS&VERSION=2.0.0&featureOfInterestId=Water%20Network>

```

<?xml version="1.0" ?>
<sos:GetFeatureOfInterestResponse
  xsi:schemaLocation="http://www.opengis.net/sos/2.0 http://schemas.opengis.net/sos/2.0/sos.xsd http://www.
  opengis.net/samplingSpatial/2.0 http://schemas.opengis.net/samplingSpatial/2.0/spatialSamplingFeature.xsd
  http://www.opengis.net/waterml/2.0 http://schemas.opengis.net/waterml/2.0/waterml2.xsd"
  xmlns:sos="http://www.opengis.net/sos/2.0" xmlns:gml="http://www.opengis.net/gml/3.2"
  xmlns:fes="http://www.opengis.net/fes/2.0" xmlns:swe="http://www.opengis.net/swe/2.0"
  xmlns:swes="http://www.opengis.net/swes/2.0"
  xmlns:sams="http://www.opengis.net/samplingSpatial/2.0"
  xmlns:sf="http://www.opengis.net/sampling/2.0" xmlns:xlink="http://www.w3.org/1999/xlink"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:wml2="http://www.opengis.net/waterml/2.0">
  <sos:featureMember>
    <wml2:MonitoringPoint gml:id="Ki.FM.0">
      <gml:identifier codeSpace="http://www.opengis.net/def/nil/OGC/0/unknown">http://hydro-sos.niwa.co.nz
      /stations/1409</gml:identifier>
      <gml:name>3 O'clock Stm at Main Site</gml:name>
      <sf:type
        xlink:href="http://www.opengis.net/def/samplingFeatureType/OGC-OM/2.0/SF_SamplingPoint"/>
      <sf:sampledFeature xsi:nil="true"/>
      <sams:shape>
        <gml:Point gml:id="Ki.P.0">
          <gml:pos srsName="http://www.opengis.net/def/crs/EPSSG/0/4326">-45.5931005300
          170.4501103750</gml:pos>
        </gml:Point>
      </sams:shape>
    </wml2:MonitoringPoint>
  </sos:featureMember>
  <sos:featureMember>
    <wml2:MonitoringPoint gml:id="Ki.FM.1">
      <gml:identifier codeSpace="http://www.opengis.net/def/nil/OGC/0/unknown">http://hydro-sos.niwa.co.nz
      /stations/1001</gml:identifier>
      <gml:name>Acheron at Clarence</gml:name>
      <sf:type
        xlink:href="http://www.opengis.net/def/samplingFeatureType/OGC-OM/2.0/SF_SamplingPoint"/>
      <sf:sampledFeature xsi:nil="true"/>
      <sams:shape>
        <gml:Point gml:id="Ki.P.1">
          <gml:pos srsName="http://www.opengis.net/def/crs/EPSSG/0/4326">-42.3754140269
          172.9647745406</gml:pos>
        </gml:Point>
      </sams:shape>
    </wml2:MonitoringPoint>
  </sos:featureMember>
  etc

  <sos:featureMember>
    <wml2:MonitoringPoint gml:id="Ki.FM.904">
      <gml:identifier codeSpace="http://www.opengis.net/def/nil/OGC/0/unknown">http://hydro-sos.niwa.co.nz
      /stations/1193</gml:identifier>
      <gml:name>Woolshed Ck at Mt Somers</gml:name>
      <sf:type
        xlink:href="http://www.opengis.net/def/samplingFeatureType/OGC-OM/2.0/SF_SamplingPoint"/>
      <sf:sampledFeature xsi:nil="true"/>
      <sams:shape>
        <gml:Point gml:id="Ki.P.904">
          <gml:pos srsName="http://www.opengis.net/def/crs/EPSSG/0/4326">-43.6795316608
          171.3416455525</gml:pos>
        </gml:Point>
      </sams:shape>
    </wml2:MonitoringPoint>
  </sos:featureMember>
</sos:GetFeatureOfInterestResponse>

```

Get data Availability

```
<?xml version="1.0" ?>
<gda:GetDataAvailabilityResponse
  xsi:schemaLocation="http://www.opengis.net/sosgda/1.0 http://waterml2.org/schemas/gda/1.0/gda.xsd"
  xmlns:gml="http://www.opengis.net/gml/3.2" xmlns:xlink="http://www.w3.org/1999/xlink"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:gda="http://www.opengis.net/sosgda/1.0">
  <gda:dataAvailabilityMember gml:id="Ki.DAM.0">
    <gda:procedure xlink:href="http://hydro-sos.niwa.co.nz/tstypes/River level Raw 2612"
      xlink:title="River level Raw 2612"/>
    <gda:observedProperty
      xlink:href="http://hydro-sos.niwa.co.nz/parameters/River level Raw 2612"
      xlink:title="River level Raw 2612"/>
    <gda:featureOfInterest xlink:href="http://hydro-sos.niwa.co.nz/stations/1001"
      xlink:title="Acheron at Clarence"/>
    <gda:phenomenonTime>
      <gml:TimePeriod gml:id="Ki.TP.0">
        <gml:beginPosition>1958-04-02T00:00:00.000+00:00</gml:beginPosition>
        <gml:endPosition>2014-07-18T00:00:00.000+00:00</gml:endPosition>
      </gml:TimePeriod>
    </gda:phenomenonTime>
  </gda:dataAvailabilityMember>
  <gda:dataAvailabilityMember gml:id="Ki.DAM.1">
    <gda:procedure xlink:href="http://hydro-sos.niwa.co.nz/tstypes/River level QC 2613"
      xlink:title="River level QC 2613"/>
    <gda:observedProperty
      xlink:href="http://hydro-sos.niwa.co.nz/parameters/River level QC 2613"
      xlink:title="River level QC 2613"/>
    <gda:featureOfInterest xlink:href="http://hydro-sos.niwa.co.nz/stations/1001"
      xlink:title="Acheron at Clarence"/>
    <gda:phenomenonTime>
      <gml:TimePeriod gml:id="Ki.TP.1">
        <gml:beginPosition>1958-04-02T00:00:00.000+00:00</gml:beginPosition>
        <gml:endPosition>2014-01-24T00:00:00.000+00:00</gml:endPosition>
      </gml:TimePeriod>
    </gda:phenomenonTime>
  </gda:dataAvailabilityMember>
  <gda:dataAvailabilityMember gml:id="Ki.DAM.2">
    <gda:procedure xlink:href="http://hydro-sos.niwa.co.nz/tstypes/Rainfall QC 9769"
      xlink:title="Rainfall QC 9769"/>
    <gda:observedProperty xlink:href="http://hydro-sos.niwa.co.nz/parameters/Rainfall QC 9769"
      xlink:title="Rainfall QC 9769"/>
    <gda:featureOfInterest xlink:href="http://hydro-sos.niwa.co.nz/stations/1001"
      xlink:title="Acheron at Clarence"/>
    <gda:phenomenonTime>
      <gml:TimePeriod gml:id="Ki.TP.2">
        <gml:beginPosition>1988-09-02T00:00:00.000+00:00</gml:beginPosition>
        <gml:endPosition>1991-05-20T00:00:00.000+00:00</gml:endPosition>
      </gml:TimePeriod>
    </gda:phenomenonTime>
  </gda:dataAvailabilityMember>
  <gda:dataAvailabilityMember gml:id="Ki.DAM.3">
    <gda:procedure xlink:href="http://hydro-sos.niwa.co.nz/tstypes/Ratings QC 2611"
      xlink:title="Ratings QC 2611"/>
    <gda:observedProperty
      xlink:href="http://hydro-sos.niwa.co.nz/parameters/Stage/Flow rating QC 2611"
      xlink:title="Stage/Flow rating QC 2611"/>
    <gda:featureOfInterest xlink:href="http://hydro-sos.niwa.co.nz/stations/1001"
      xlink:title="Acheron at Clarence"/>
    <gda:phenomenonTime>
      <gml:TimePeriod gml:id="Ki.TP.3">
        <gml:beginPosition>1958-04-02T00:00:00.000+00:00</gml:beginPosition>
        <gml:endPosition>2014-01-24T00:00:00.000+00:00</gml:endPosition>
      </gml:TimePeriod>
    </gda:phenomenonTime>
  </gda:dataAvailabilityMember>
</gda:GetDataAvailabilityResponse>
```



## Describe Sensor

[http://hydro-sos.niwa.co.nz/?datasource=0&service=SOS&REQUEST=describesensor&VERSION=2.0.0&procedureDescriptionFormat=http://www.opengis.net/sensorML/1.0.1&procedure=Rainfall%20QC%209769&observedproperty=Rainfall\[mm\]&outputFormat=text/xml;subtype=sensorML/1.0.1&featureOfInterest=Acheron%20at%20Clarence/1001](http://hydro-sos.niwa.co.nz/?datasource=0&service=SOS&REQUEST=describesensor&VERSION=2.0.0&procedureDescriptionFormat=http://www.opengis.net/sensorML/1.0.1&procedure=Rainfall%20QC%209769&observedproperty=Rainfall[mm]&outputFormat=text/xml;subtype=sensorML/1.0.1&featureOfInterest=Acheron%20at%20Clarence/1001)

```
<?xml version="1.0" ?>
<swes:DescribeSensorResponse
  xsi:schemaLocation="http://www.opengis.net/swes/2.0 http://schemas.opengis.net/swes/2.0/swesDescribeSensor.xsd"
  xmlns:sml="http://www.opengis.net/sensorML/1.0.1"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns:xlink="http://www.w3.org/1999/xlink"
  xmlns:gml="http://www.opengis.net/gml" xmlns:swes="http://www.opengis.net/swes/2.0"
  xmlns:wml2="http://www.opengis.net/waterml/2.0">
  <swes:procedureDescriptionFormat>http://www.opengis.net/sensorML/1.0.1</swes:procedureDescriptionFormat>
  <swes:description>
    <swes:SensorDescription>
      <swes:data>
        <sml:SensorML version="1.0.1">
          <sml:member xlink:arcrole="urn:ogc:def:role:process">
            <sml:ProcessModel gml:id="Ki.Model.0">
              <gml:description>Rainfall QC 9769</gml:description>
              <sml:method
                xlink:href="http://hydro-sos.niwa.co.nz/tstypes/Rainfall QC 9769"
                xlink:title="Rainfall QC 9769"/>
            </sml:ProcessModel>
          </sml:member>
        </sml:SensorML>
      </swes:data>
    </swes:SensorDescription>
  </swes:description>
</swes:DescribeSensorResponse>
```

## Get Observation

Are some of these methods now redundant? See below only one of these URLs works.

### Acheron at Clarence (1001) Rainfall (9769)

<http://hydro-sos.niwa.co.nz/?datasource=0&service=SOS&REQUEST=GetObservation&VERSION=2.0.0&procedure=Rainfall%20QC%209769&observedproperty=Rainfall%20QC%209769&outputFormat=text/xml;subtype=sensorML/1.0.1&featureOfInterest=http://hydro-sos.niwa.co.nz/stations/1001>

```

<sos:GetObservationResponse
  xsi:schemaLocation="http://www.opengis.net/sos/2.0 http://schemas.opengis.net/sos/2.0/sos.xsd http://www.
  opengis.net/waterml/2.0 http://schemas.opengis.net/waterml/2.0/waterml2.xsd"
  xmlns:wml2="http://www.opengis.net/waterml/2.0"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns:gml="http://www.opengis.net/gml/3.2"
  xmlns:om="http://www.opengis.net/om/2.0" xmlns:sos="http://www.opengis.net/sos/2.0"
  xmlns:sa="http://www.opengis.net/sampling/2.0"
  xmlns:sams="http://www.opengis.net/samplingSpatial/2.0"
  xmlns:xlink="http://www.w3.org/1999/xlink">
  <extension xmlns="http://www.opengis.net/swes/2.0"
    ><wml2:SOSProfileExtension><wml2:metadata><wml2:DocumentMetadata
      gml:id="Ki.DocMD.1"
      ><wml2:generationDate>2014-11-18T20:27:18.592+00:00</wml2:generationDate><wml2:
  generationSystem>KISTERS
  KiWIS</wml2:generationSystem></wml2:DocumentMetadata></wml2:metadata></wml2:
  SOSProfileExtension></extension>
  <sos:observationData>
    <om:OM_Observation gml:id="Ki.OM_Obs.1">
      <om:phenomenonTime>
        <gml:TimePeriod gml:id="Ki.ObsTime.1">
          <gml:beginPosition>1991-05-19T19:15:00.000+00:00</gml:beginPosition>
          <gml:endPosition>1991-05-19T19:15:00.000+00:00</gml:endPosition>
          </gml:TimePeriod>
        </om:phenomenonTime>
        <om:resultTime>
          <gml:TimeInstant gml:id="Ki.resTime.1">
            <gml:timePosition>1991-05-19T19:15:00.000+00:00</gml:timePosition>
            </gml:TimeInstant>
          </om:resultTime>
          <om:procedure xlink:href="http://hydro-sos.niwa.co.nz/tstypes/Rainfall_QC_9769"
            xlink:title="Rainfall_QC_9769"/>
          <om:observedProperty
            xlink:href="http://hydro-sos.niwa.co.nz/parameters/Rainfall_QC_9769"
            xlink:title="Rainfall_QC_9769"/>
          <om:featureOfInterest xlink:href="http://hydro-sos.niwa.co.nz/stations/1001"
            xlink:title="Acheron at Clarence"/>
          <om:result>
            <wml2:MeasurementTimeseries gml:id="Ki.Ts.9769">
              <wml2:defaultPointMetadata>
                <wml2:DefaultTVPMeasurementMetadata>
                  <wml2:uom code="mm"/>
                </wml2:DefaultTVPMeasurementMetadata>
              </wml2:defaultPointMetadata>
              <wml2:point>
                <wml2:MeasurementTVP>
                  <wml2:time>1991-05-19T19:15:00.000+00:00</wml2:time>
                  <wml2:value>0</wml2:value>
                  <wml2:metadata>
                    <wml2:TVPMeasurementMetadata>
                      <wml2:qualifier
                        xlink:href="http://hydro-sos.niwa.co.nz/qualifiers/0"
                        xlink:title="0"/>
                      </wml2:TVPMeasurementMetadata>
                    </wml2:metadata>
                  </wml2:MeasurementTVP>
                </wml2:point>
              </wml2:MeasurementTimeseries>
            </om:result>
          </om:OM_Observation>
        </sos:observationData>
      </sos:GetObservationResponse>

```

## With dates specified

<http://hydro-sos.niwa.co.nz/?datasource=0&version=2.0&service=SOS&request=getobservation&featureOfInterest=http://hydro-sos.niwa.co.nz/stations/1001&observedProperty=http://hydro-sos.niwa.co.nz/parameters/Rainfall+QC+9769&temporalFilter=om:phenomenonTime,1990-05-20T12:00.00.000+12:00+/1991-05-20T00:00:00.000+00:00>

Only part of the response included.

```
<sos:GetObservationResponse
  xsi:schemaLocation="http://www.opengis.net/sos/2.0 http://schemas.opengis.net/sos/2.0/sos.xsd http://www.
  opengis.net/waterml/2.0 http://schemas.opengis.net/waterml/2.0/waterml2.xsd"
  xmlns:wml2="http://www.opengis.net/waterml/2.0"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns:gml="http://www.opengis.net/gml/3.2"
  xmlns:om="http://www.opengis.net/om/2.0" xmlns:sos="http://www.opengis.net/sos/2.0"
  xmlns:sa="http://www.opengis.net/sampling/2.0"
  xmlns:sams="http://www.opengis.net/samplingSpatial/2.0"
  xmlns:xlink="http://www.w3.org/1999/xlink">
  <extension xmlns="http://www.opengis.net/swes/2.0"><wml2:SOSProfileExtension><wml2:metadata>
    <wml2:DocumentMetadata gml:id="Ki.DocMD.1">
      <wml2:generationDate>2014-11-18T20:45:19.735+00:00</wml2:generationDate>
      <wml2:generationSystem>KISTERS KiWIS</wml2:generationSystem>
    </wml2:DocumentMetadata>
  </wml2:metadata></wml2:SOSProfileExtension></extension>
  <sos:observationData>
    <om:OM_Observation gml:id="Ki.OM_Obs.1">
      <om:phenomenonTime>
        <gml:TimePeriod gml:id="Ki.ObsTime.1">
          <gml:beginPosition>1990-05-22T14:15:00.000+00:00</gml:beginPosition>
          <gml:endPosition>1991-05-19T19:15:00.000+00:00</gml:endPosition>
        </gml:TimePeriod>
      </om:phenomenonTime>
      <om:resultTime>
        <gml:TimeInstant gml:id="Ki.resTime.1">
          <gml:timePosition>1991-05-19T19:15:00.000+00:00</gml:timePosition>
        </gml:TimeInstant>
      </om:resultTime>
      <om:procedure xlink:href="http://hydro-sos.niwa.co.nz/tstypes/Rainfall_QC_9769"
        xlink:title="Rainfall_QC_9769"/>
      <om:observedProperty
        xlink:href="http://hydro-sos.niwa.co.nz/parameters/Rainfall_QC_9769"
        xlink:title="Rainfall_QC_9769"/>
      <om:featureOfInterest xlink:href="http://hydro-sos.niwa.co.nz/stations/1001"
        xlink:title="Acheron at Clarence"/>
      <om:result><wml2:MeasurementTimeseries gml:id="Ki.Ts.9769">
        <wml2:defaultPointMetadata>
          <wml2:DefaultTVPMeasurementMetadata>
            <wml2:uom code="mm"/>
          </wml2:DefaultTVPMeasurementMetadata>
        </wml2:defaultPointMetadata>
        <wml2:point>
          <wml2:MeasurementTVP>
            <wml2:time>1990-05-22T14:15:00.000+00:00</wml2:time>
            <wml2:value>0</wml2:value>
            <wml2:metadata>
              <wml2:TVPMeasurementMetadata>
                <wml2:qualifier
                  xlink:href="http://hydro-sos.niwa.co.nz/qualifiers/0"
                  xlink:title="0"/>
              </wml2:TVPMeasurementMetadata>
            </wml2:metadata>
          </wml2:MeasurementTVP>
        </wml2:point>
        <wml2:point>
          <wml2:MeasurementTVP>
            <wml2:time>1990-05-22T14:30:00.000+00:00</wml2:time>
            <wml2:value>1.111111111111111160454356650006957352161407470703125</wml2:value>
            <wml2:metadata>
              <wml2:TVPMeasurementMetadata>
                <wml2:qualifier
                  xlink:href="http://hydro-sos.niwa.co.nz/qualifiers/0"
                  xlink:title="0"/>
              </wml2:TVPMeasurementMetadata>
            </wml2:metadata>
          </wml2:MeasurementTVP>
        </wml2:point>
      </om:result>
    </om:OM_Observation>
  </sos:observationData>
</wml2:point>
</wml2:point>
```

```
<wml2:MeasurementTVP>
  <wml2:time>1990-05-22T15:00:00.000+00:00</wml2:time>
  <wml2:value>0.5555555555555555802271783250034786760807037353515625</wml2:value>
  <wml2:metadata>
    <wml2:TVPMeasurementMetadata>
      <wml2:qualifier
        xlink:href="http://hydro-sos.niwa.co.nz/qualifiers/0"
        xlink:title="0"/>
      </wml2:TVPMeasurementMetadata>
    </wml2:metadata>
  </wml2:MeasurementTVP>
</wml2:point>
</wml2:MeasurementTimeseries></om:result>
</om:OM_Observation>
</sos:observationData>
</sos:GetObservationResponse>
```