

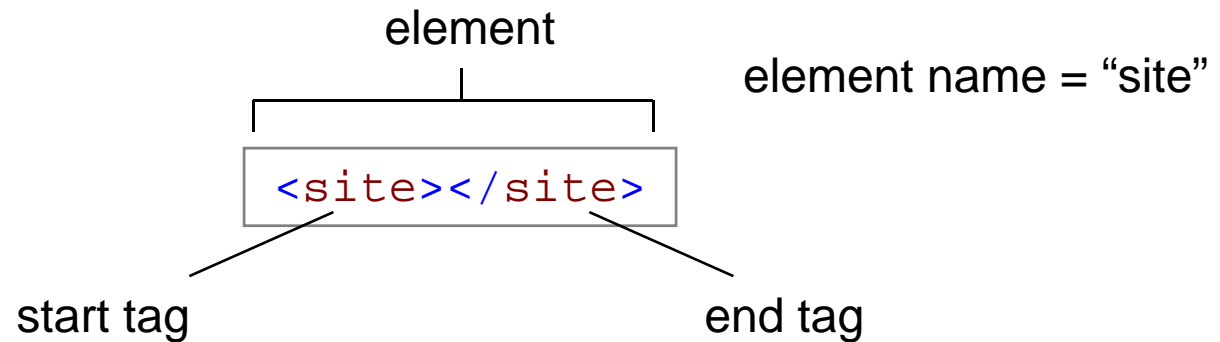
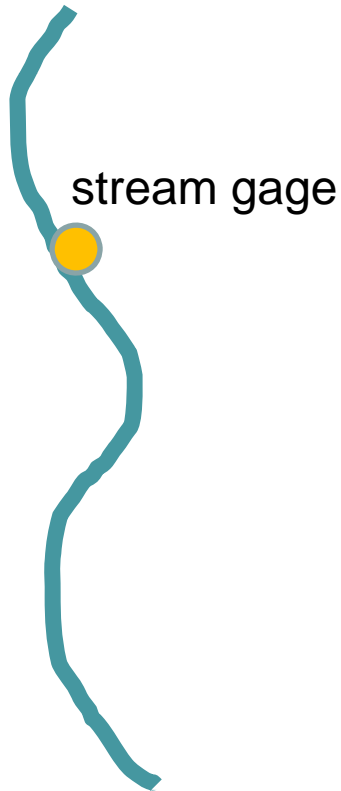
XML – A Primer

- e**X**tensible **M**arkup **L**anguage
- XML represents **data**
- XML is both **human** and **machine** readable

```
<site>  
  <name>Colorado Rv at Austin, TX</name>  
</site>
```

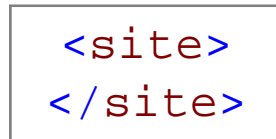
XML Structure

- Example – Let's describe a stream gage on the Colorado River



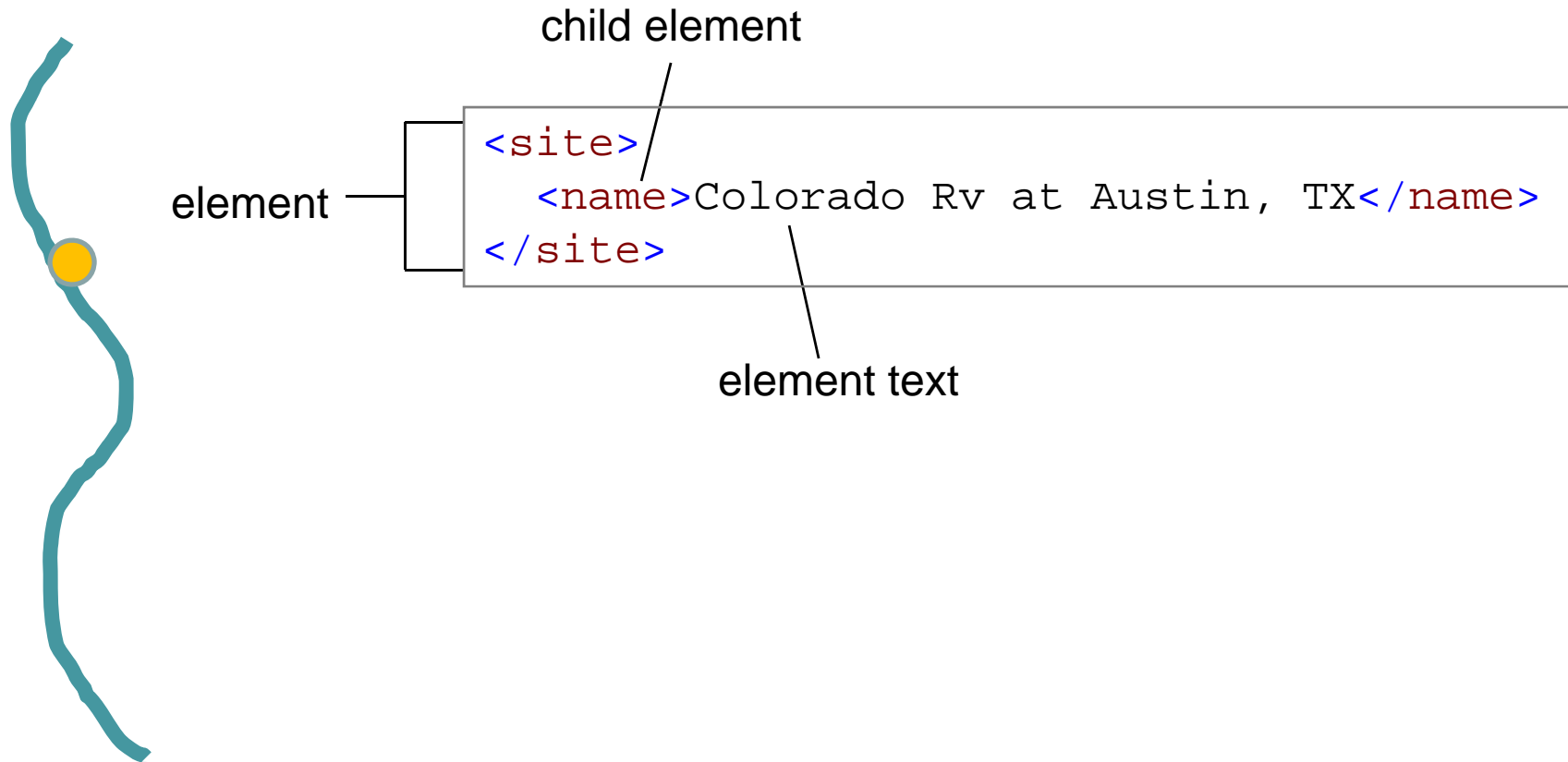
Can also write as

```
<site>  
</site>
```



The diagram shows an XML element structure. A box contains the code `<site>` on the first line and `</site>` on the second line.

Elements can have **Children**



Elements can have **Attributes**



```
<site>  
  <name>Colorado Rv at Austin, TX</name>  
  <siteCode network="NWIS">08158000</siteCode>  
</site>
```

attribute name

attribute value

XML Nesting



```
<site>
  <name>Colorado Rv at Austin, TX</name>
  <siteCode network="NWIS">08158000</siteCode>
  <location>
    <latitude>30.24</latitude>
    <longitude>-97.69</longitude>
  </location>
</site>
```

WaterML

- XML for describing **water data**
- Defined at

<http://water.sdsc.edu/waterOneFlow/documentation/schema/>

- WaterOneFlow returns data in WaterML format

WaterML defines elements and nesting

specific element names

specific element nesting

```
<sourceInfo xsi:type="SiteInfoType">  
  <siteName>Colorado Rv at Austin, TX</siteName>  
  <siteCode siteID="1389">08158000</siteCode>  
  <timeZoneInfo>  
    <defaultTimeZone ZoneAbbreviation="CST" ZoneOffset="-6:00" />  
    <daylightSavingsTimeZone />  
  </timeZoneInfo>  
  <geoLocation>  
    <geogLocation xsi:type="LatLonPointType" srs="EPSG:4269">  
      <latitude>30.24465429</latitude>  
      <longitude>-97.694448</longitude>  
    </geogLocation>  
  </geoLocation>  
  <note>Agency:USGS</note>  
</sourceInfo>
```

WaterML includes location, variables, and time series

```

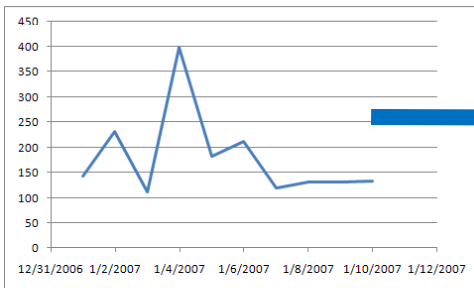
<timeSeriesResponse xmlns:gml="http://www.opengis.net/gml" xmlns:xlink="http://www.w3.org/1999/xlink"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:wtr="http://www.cuahsi.org/waterML/"
  xmlns="http://www.cuahsi.org/waterML/1.0/">
  <queryInfo>...
  <timeSeries>
    <sourceInfo xsi:type="SiteInfoType">
      <siteName>Colorado Rv at Austin, TX</siteName>
      <siteCode siteID="1389">08158000</siteCode>
      <timeZoneInfo>...
      <geoLocation>...
      <note>Agency:USGS</note>
    </sourceInfo>
    <variable>
      <variableCode vocabulary="USGS">00060</variableCode>
      <variableName>Discharge</variableName>
      <dataType>Average</dataType>
      <units>cfs</units>
      <options>...
    </variable>
    <values>
      <value qualifiers="A" dateTime="2007-01-01T00:00:00">143</value>
      <value qualifiers="A" dateTime="2007-01-02T00:00:00">231</value>
      <value qualifiers="A" dateTime="2007-01-03T00:00:00">112</value>
      <value qualifiers="A" dateTime="2007-01-04T00:00:00">398</value>
      <value qualifiers="A" dateTime="2007-01-05T00:00:00">182</value>
      <value qualifiers="A" dateTime="2007-01-06T00:00:00">212</value>
      <value qualifiers="A" dateTime="2007-01-07T00:00:00">120</value>
      <value qualifiers="A" dateTime="2007-01-08T00:00:00">131</value>
      <value qualifiers="A" dateTime="2007-01-09T00:00:00">132</value>
      <value qualifiers="A" dateTime="2007-01-10T00:00:00">133</value>
      <qualifier qualifierCode="A" network="USGS" vocabulary="dv_rnk_cd">
        Approved for publication -- Processing and review completed.</qualifier>
    </values>
  </timeSeries>
</timeSeriesResponse>
  
```



location



variable



time series