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Die Wetterstation im Sensor Web

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Das *Sensor Web*



Sensors Are Everywhere



■ Unser Wetterstations-Protokoll:

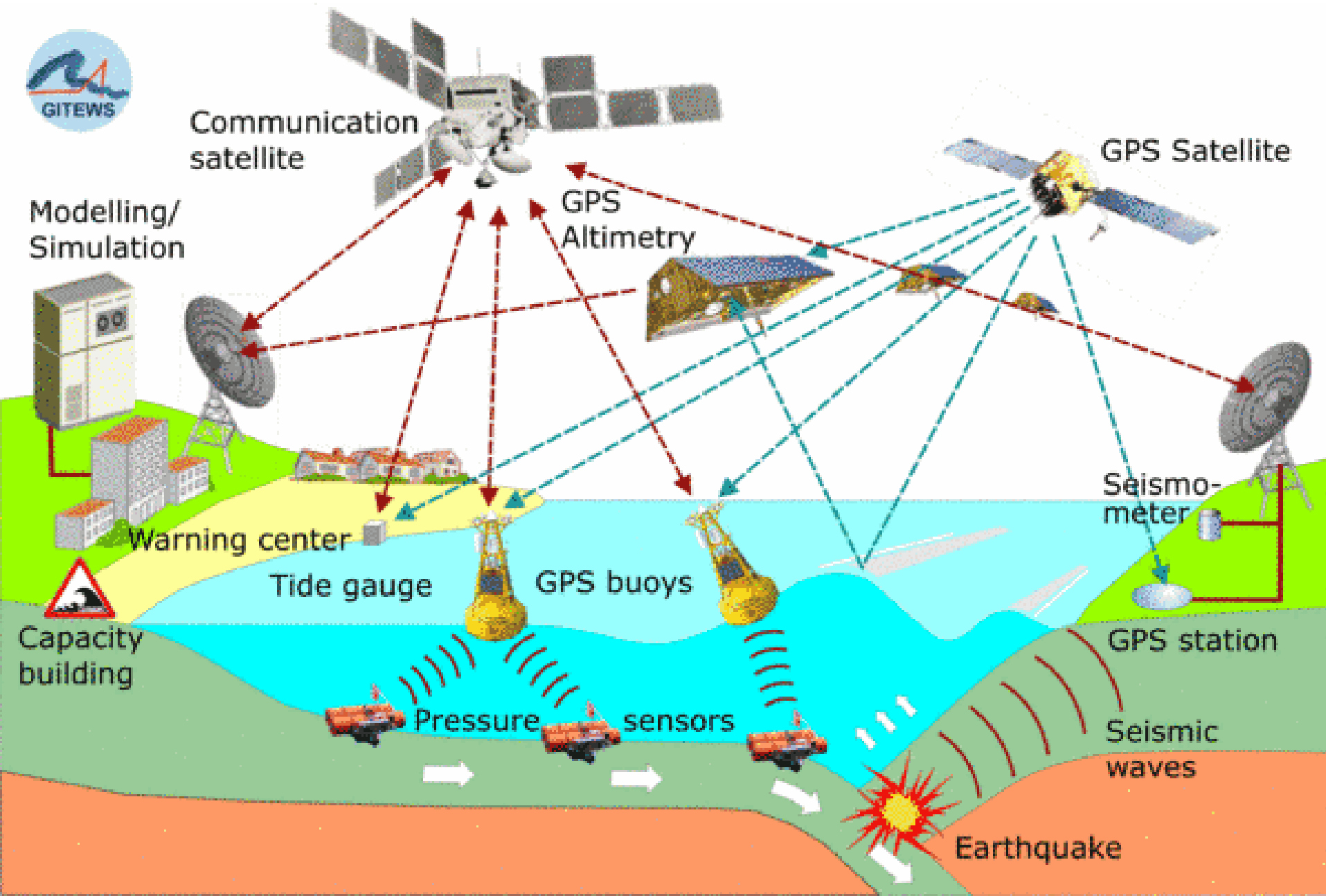
```
Sensor_Count;3#  
Sensor_Type;DavisWeatherStation#  
Sensor_Description;Test Template For School#  
Time_Stamp;2010.08.30;12:57:46#  
Coordinate_System;4326#  
Coordinates;33.223;44.545;59#  
WindSensor;WindSpeed;34;m/s#  
Thermometer;Temperature;22;degCel#  
WindDirectionSensor;WindDirection;270;deg#
```

Wie können wir diese Sensoren mit ihren
verschiedensten „***Sprachen***“ nutzbar machen?

Vision

- *World Wide Web* is for **websites**
 - HTTP
 - HTML
 - ...
- *Sensor Web* is for **sensors**
 - SensorML
 - SOS
 - ...

Sensor Web Beispiel Projekt: Tsunami Frühwarnsystem



Standards für Sensor-Daten

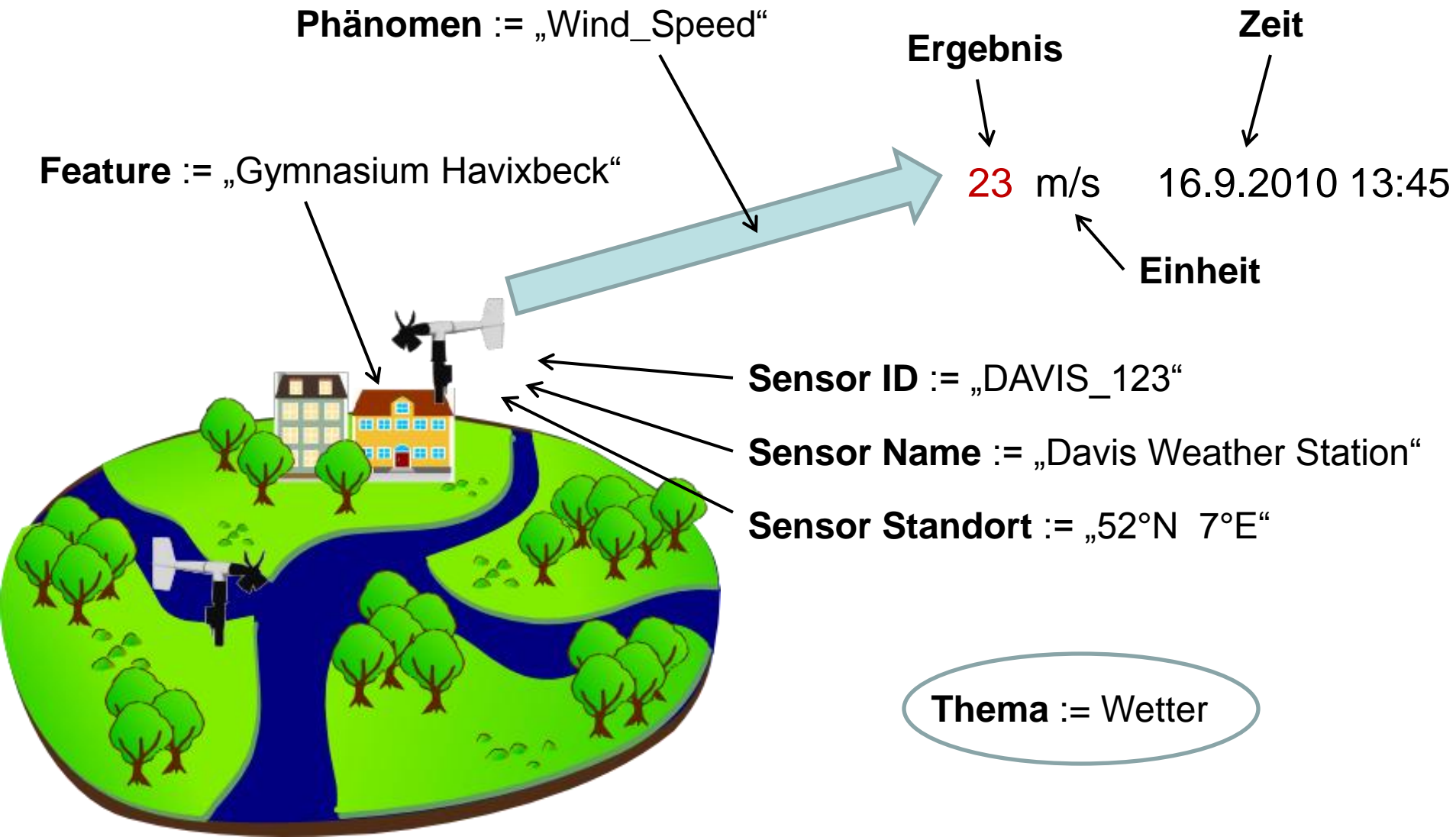


WWW → Sensor Web

Webserver → Sensor Observation Service (**SOS**)

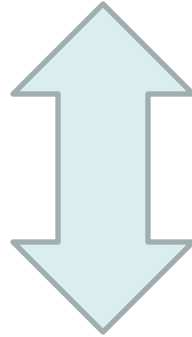
HTML → **SensorML**

Mess-Daten & Meta-Daten

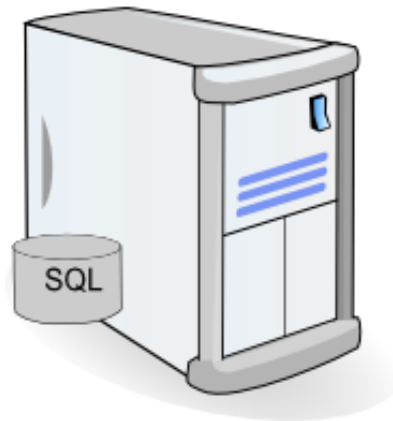


Sensor Observation Service

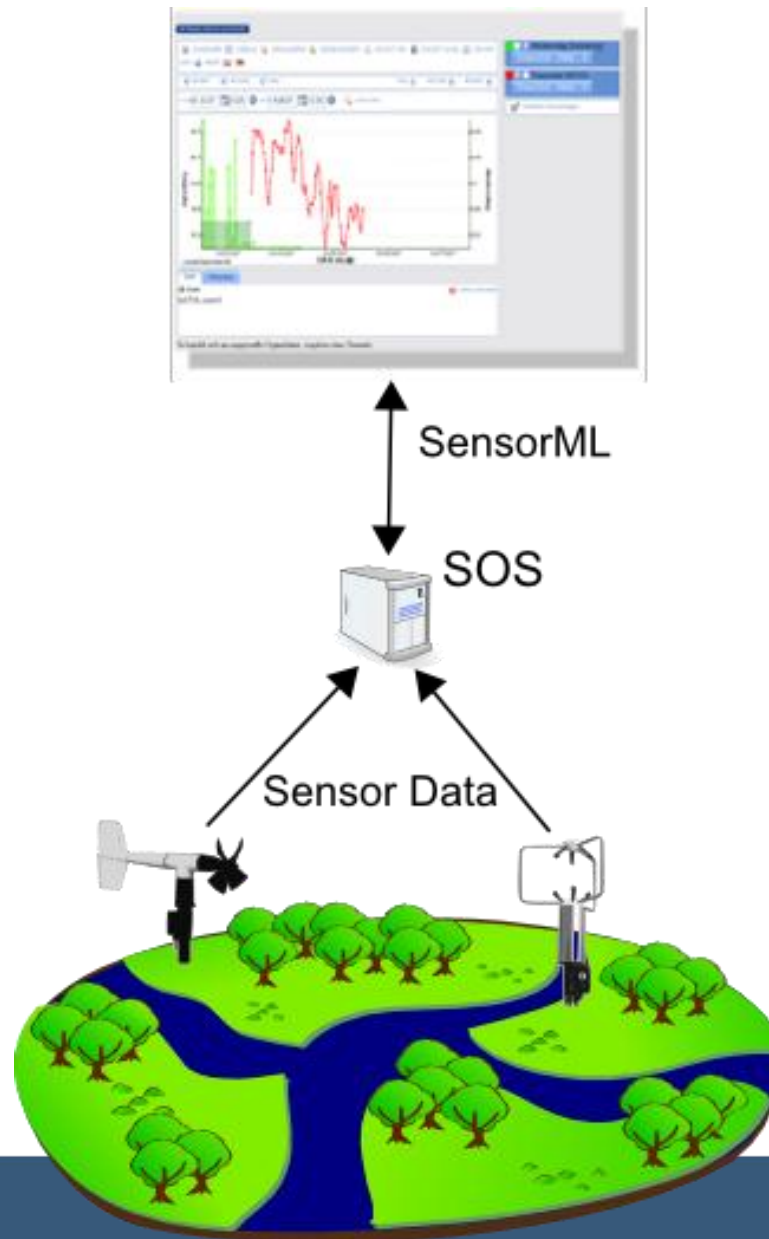
SensorML



SOS



Überblick: SOS



Client Demo

- → [Link](#)

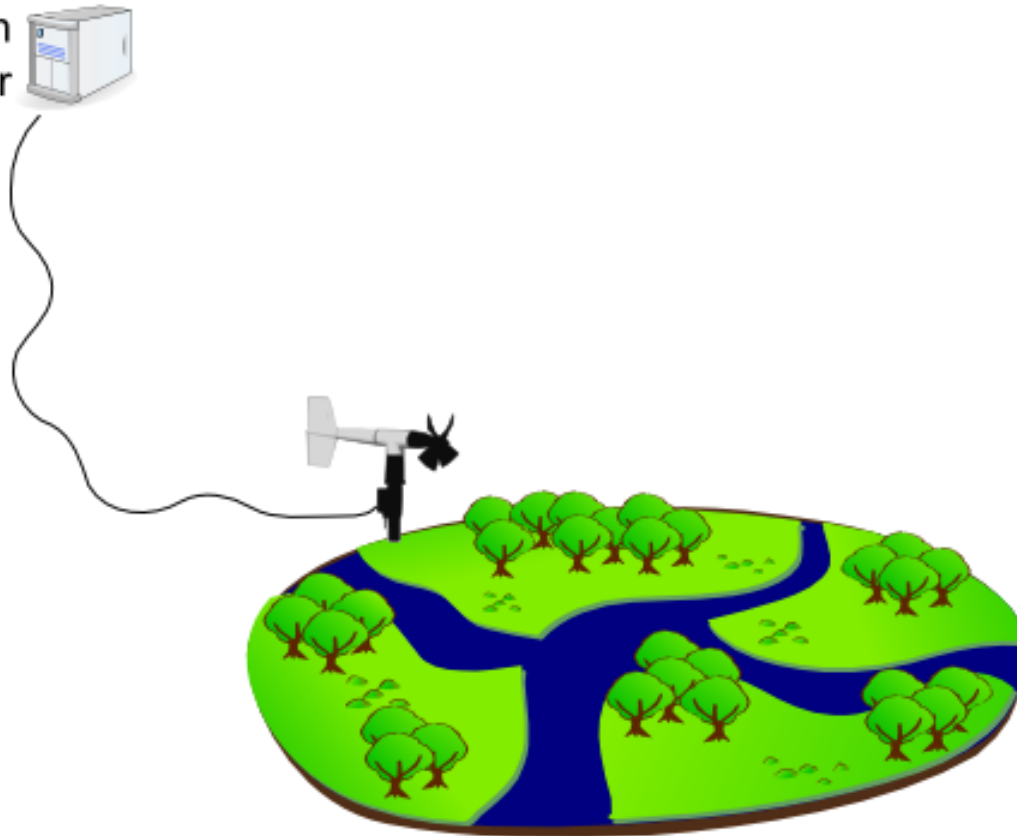
Ziel: Wetterstation Havixbeck ins Sensor Web

DAVIS Wetterstation



Anbindung: Wetterstation - Computer

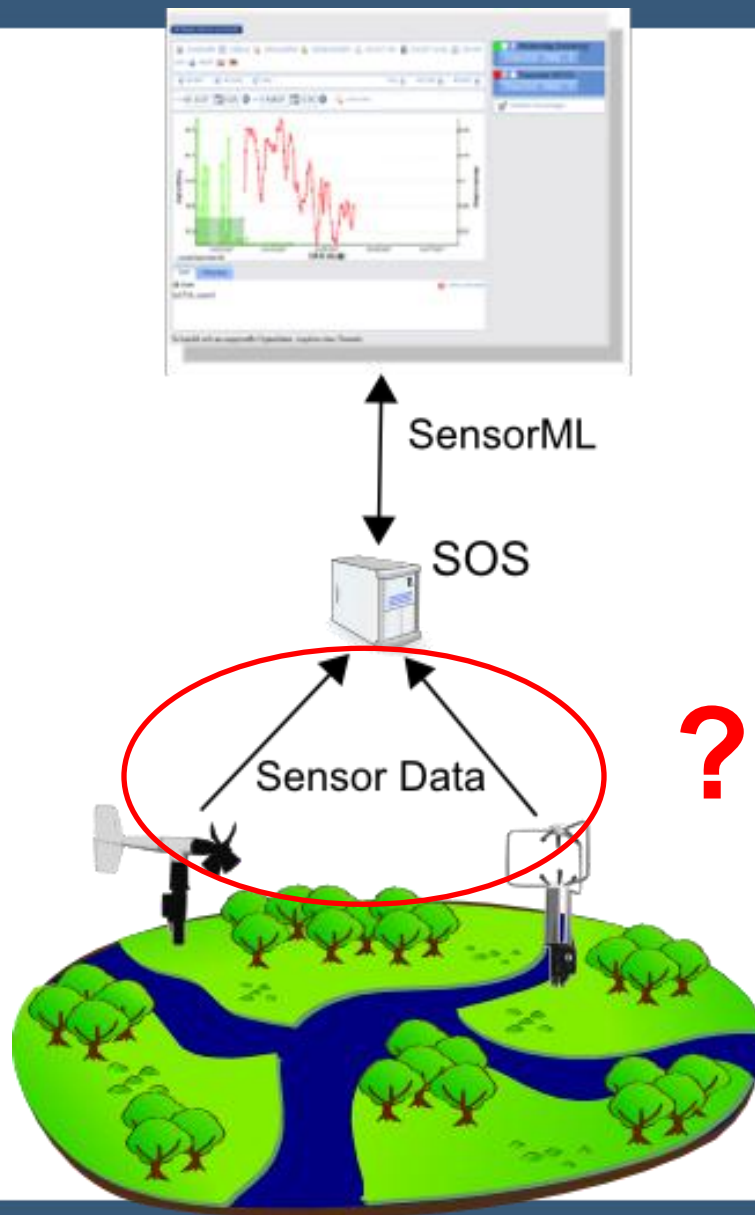
Weatherstation
Computer



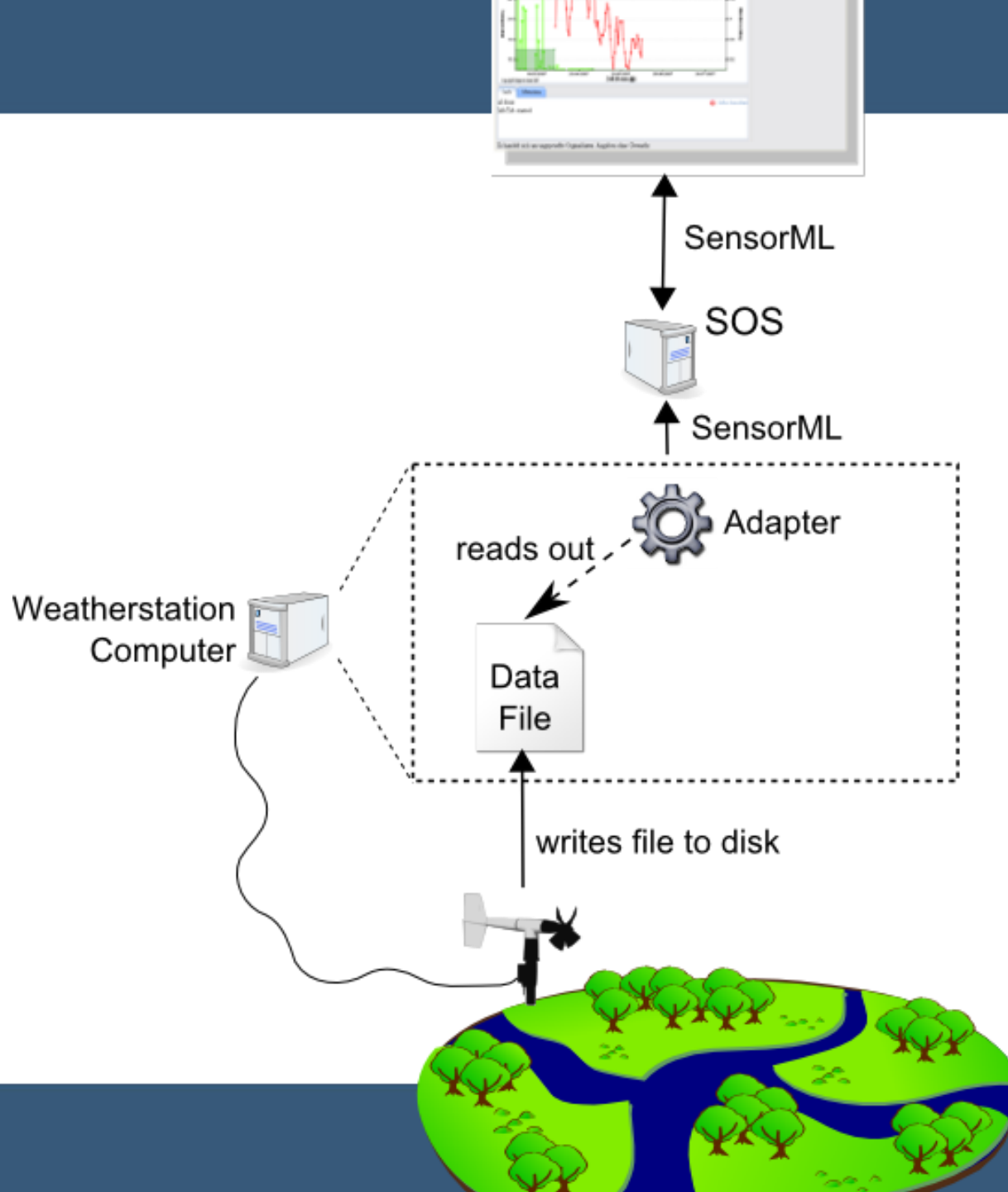
■ Wetterstations-Protokoll:

```
Sensor_Count;3#  
Sensor_Type;DavisWeatherStation#  
Sensor_Description;Test Template For School#  
Time_Stamp;2010.08.30;12:57:46#  
Coordinate_System;4326#  
Coordinates;33.223;44.545;59#  
WindSensor;WindSpeed;34;m/s#  
Thermometer;Temperature;22;degCel#  
WindDirectionSensor;WindDirection;270;deg#
```

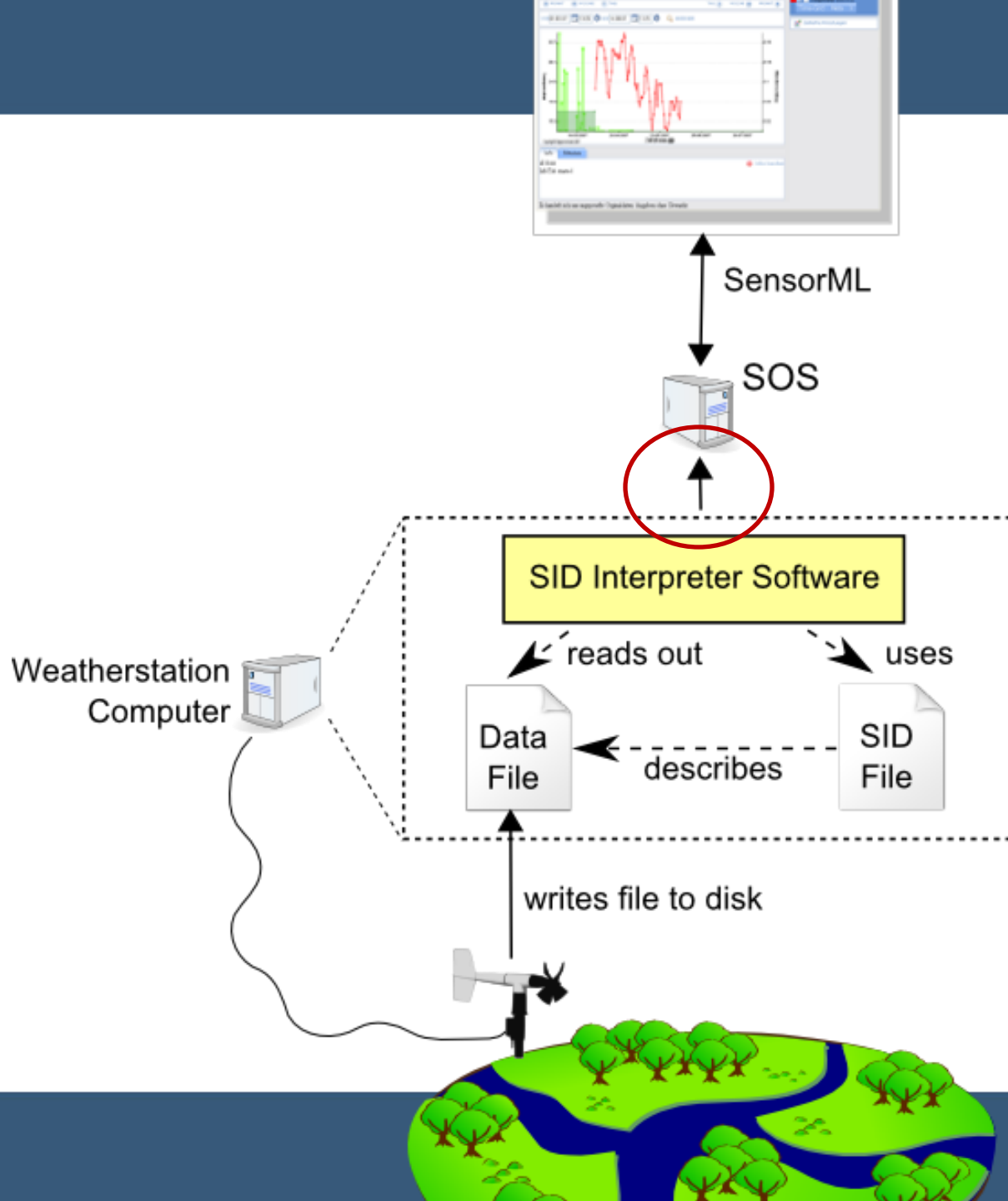

Wie bringt man die gemessenen Daten in den
SOS Server?



1.) Adapter Programmieren!



2.) **Grafische Erstellung von Adaptern mit** *Sensor Interface Descriptors (SIDs) !*



Rückblick...

- Unser Wetterstations-Protokoll:

```
Sensor_Count;3#  
Sensor_Type;DavisWeatherStation#  
Sensor_Description;Test Template For School#  
Time_Stamp;2010.08.30;12:57:46#  
Coordinate_System;4326#  
Coordinates;33.223;44.545;59#  
WindSensor;WindSpeed;34;m/s#  
Thermometer;Temperature;22;degCel#  
WindDirectionSensor;WindDirection;270;deg#
```

Sensor Interface Descriptors

- → [SID Beispiel](#)

Inhalt einer SID

Beschreibung der Daten Struktur

Sensor Daten: Station|16.09.2010_12:56|10530Q|#

Status|16.09.2010_12:56|72|#

Block

Wind01|16.09.2010_12:56|42.0|23.0|#

:

Field

SID:

Structure Separation:

Block = #

Field = |

Decimal Numbers = .

Data Block 1:

Field 1 = Block_Identifier → Value: Wind01

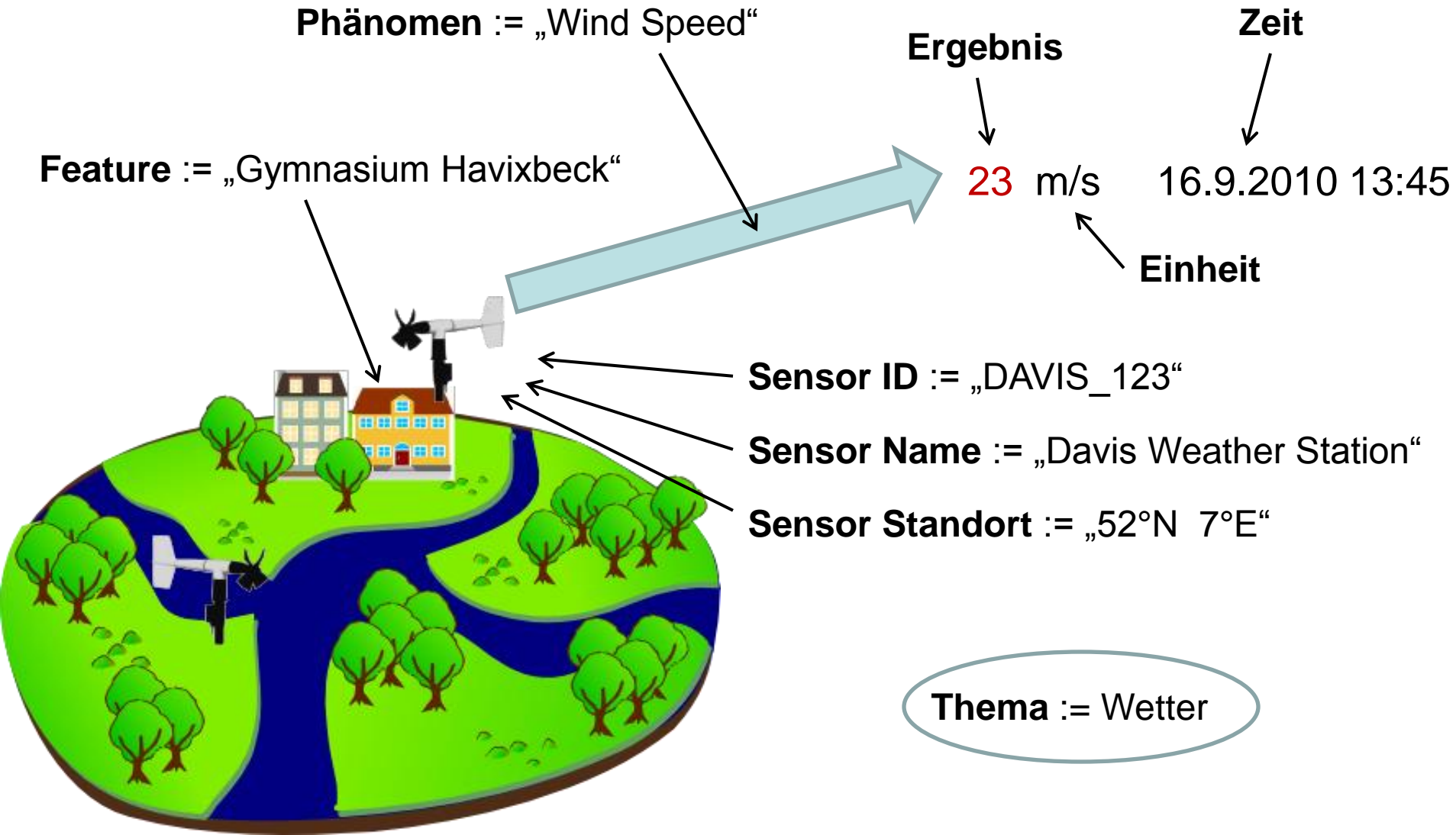
Field 2 = time

Field 3 = wind_speed

Field 4 = wind_direction

:

Verknüpfung: Mess-Daten & Meta-Daten



Verknüpfung: Mess-Daten & Meta-Daten

Field 3 "wind_speed" in Block "Wind01"

Einheit = m/s

Feature = Gymnasium Havixbeck

Phänomen = Wind Speed

Sensor ID = DAVIS_123

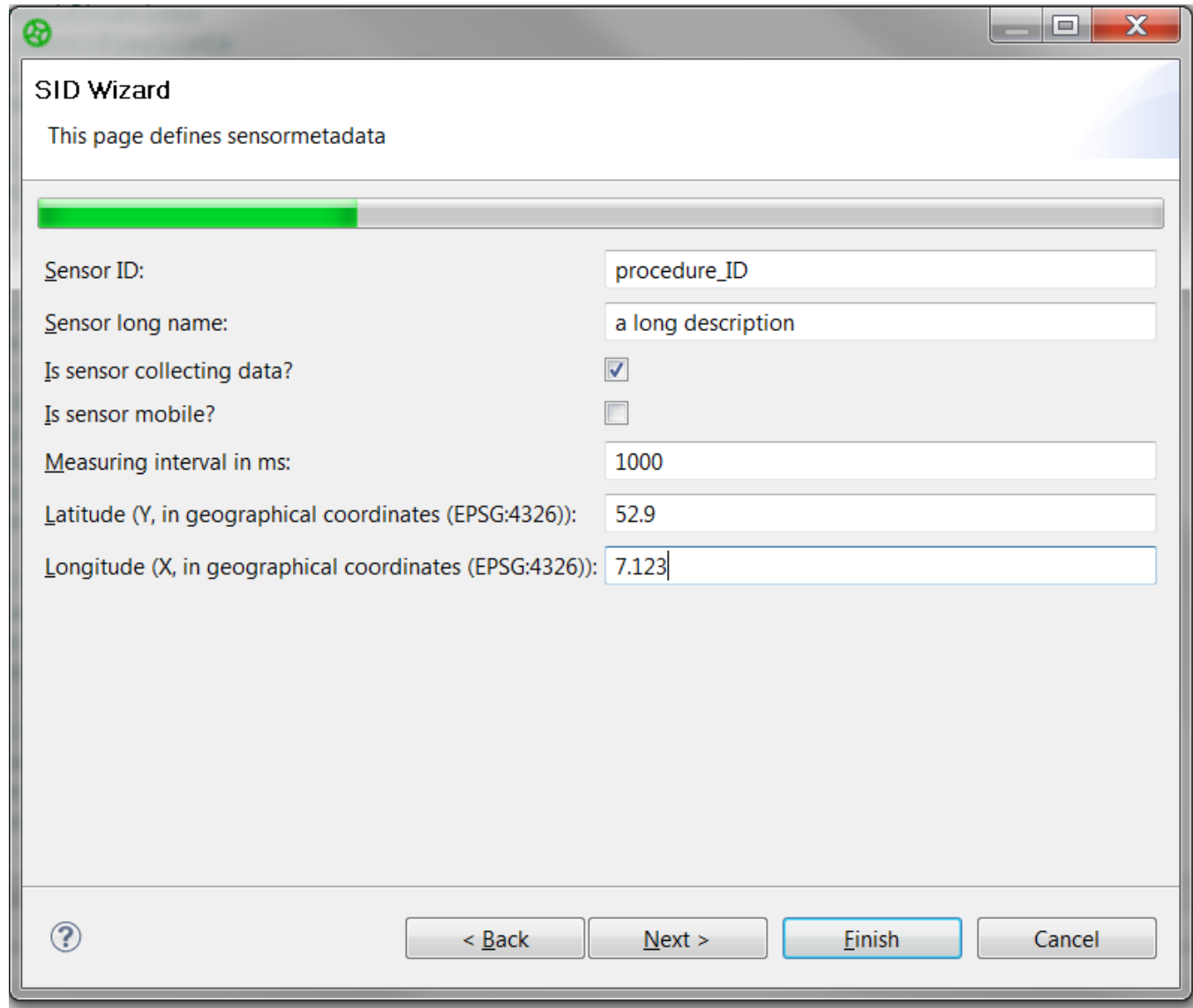
Sensor Standort = 52°N 7°E

Thema = Wetter

:

Ein grafisches Tool zum Erstellen von SIDs.

Graphical SID Creator



The image shows a screenshot of a graphical user interface window titled "SID Wizard". The window has a standard Windows-style title bar with minimize, maximize, and close buttons. Below the title bar, the text "This page defines sensormetadata" is displayed. A green progress bar is visible, indicating the current step in the wizard. The main area contains several input fields and checkboxes:

- Sensor ID:** A text box containing "procedure_ID".
- Sensor long name:** A text box containing "a long description".
- Is sensor collecting data?:** A checkbox that is checked.
- Is sensor mobile?:** A checkbox that is unchecked.
- Measuring interval in ms:** A text box containing "1000".
- Latitude (Y, in geographical coordinates (EPSG:4326)):** A text box containing "52.9".
- Longitude (X, in geographical coordinates (EPSG:4326)):** A text box containing "7.123".

At the bottom of the window, there is a help icon (a question mark in a circle) and four buttons: "< Back", "Next >", "Finish" (highlighted in blue), and "Cancel".

Graphical SID Creator

The screenshot shows a window titled "SID Wizard" with a green icon in the top-left corner. The window has standard Windows-style window controls (minimize, maximize, close) in the top-right corner. Below the title bar, the text "This page will define the incoming data stream and the sensor protocol" is displayed. A green progress bar is partially filled. The main area contains several input fields and buttons. On the left, there are labels for "Sensor component name:", "Connector:", "How are they seperated?", "What is the token?", and "What is the decimal seperator?". To the right of these labels are input fields: "Component_Name", a dropdown menu showing "Serial", and three text boxes containing ";", ",", and "." respectively. Below these are two buttons: "Add Block" and "Add Field". At the bottom left, there is a list box titled "Blocks" containing "Temp_Block" (which is highlighted) and "Wind_Block". To the right of the list box is a text area with the message "NLS missing message: Fields in: org.n52.sid.wizard.i1..." and a text box containing "Temperature_Raw". At the bottom of the window, there is a row of buttons: a help button (question mark icon), "< Back", "Next >", "Finish" (highlighted in blue), and "Cancel".

SID Wizard

This page will define the incoming data stream and the sensor protocol

Sensor component name:

Connector:

How are they seperated?

What is the token?

What is the decimal seperator?

Blocks

- Temp_Block
- Wind_Block

NLS missing message: Fields in: org.n52.sid.wizard.i1...

Temperature_Raw

Graphical SID Creator

SID Wizard
This page defines metadata and outputs

Add field to outputs:

Field	Output
Temperature_RawOut	Output1

Name:

Theme:

Feature:

Phenomenon:

Unit of measurement:

Questions?

Thank you!

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