ifgi
Institute for Geoinformatics
University of Münster

52north
exploring horizons

Die Wetterstation im Sensor Web

A. Broering & F. Bache

Das *Sensor Web*

Sensors Are Everywhere

- Unser Wetterstations-Protokoll:

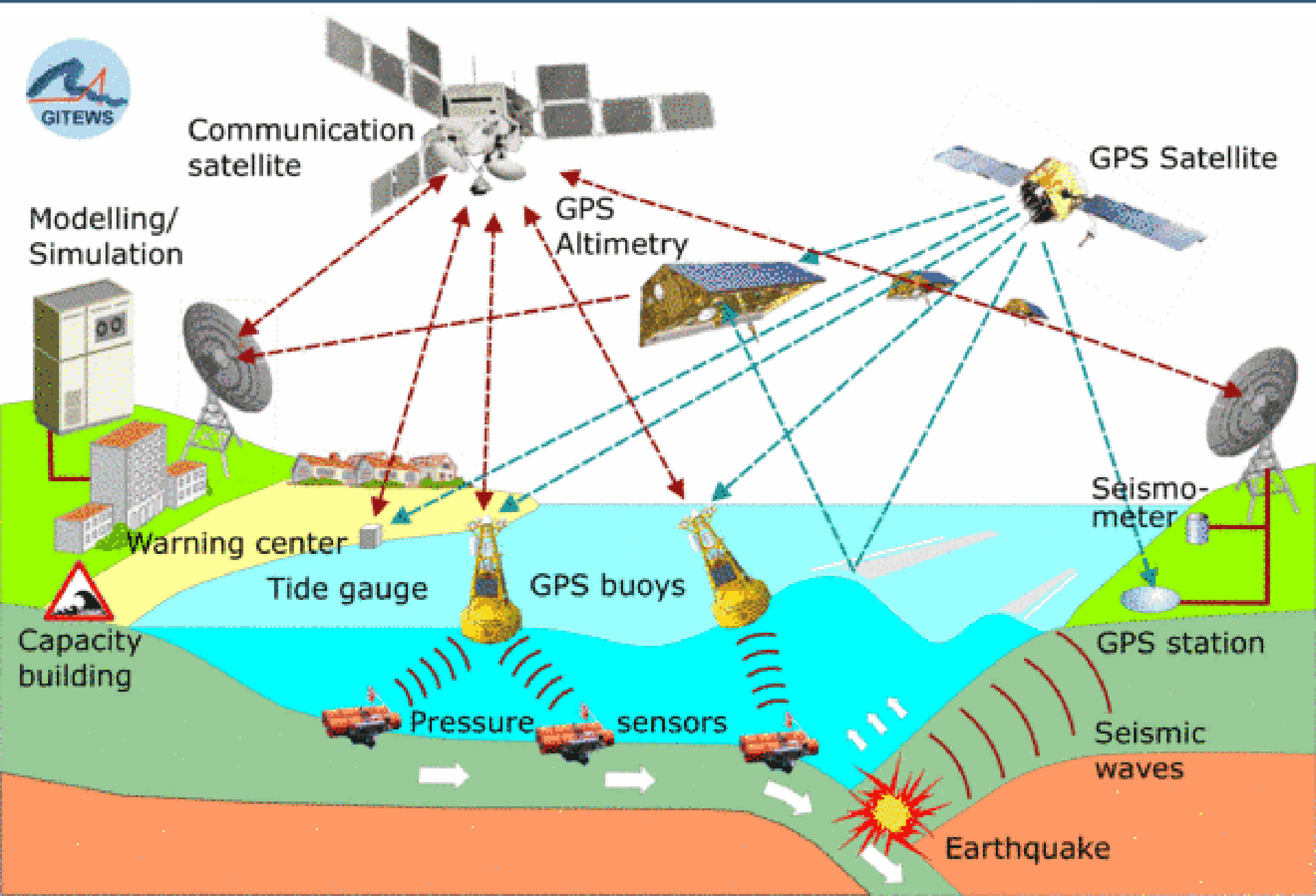
```
Sensor_Count;3#
Sensor_Type;DavisWeatherStation#
Sensor_Description;Test Template For School#
Time_Stamp;2010.08.30;12:57:46#
Coordinate_System;4326#
Coordinates;33.223;44.545;59#
WindSensor;WindSpeed;34;m/s#
Thermometer;Temperature;22;degCel#
WindDirectionSensor;WindDirection;270;deg#
```

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

Phänomen := „Wind_Speed“

Ergebnis

Zeit

Feature := „Gymnasium Havixbeck“

23 m/s 16.9.2010 13:45

Einheit

Sensor ID := „DAVIS_123“

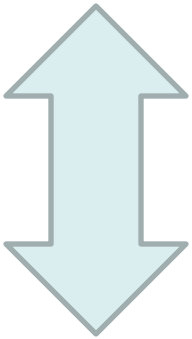
Sensor Name := „Davis Weather Station“

Sensor Standort := „52°N 7°E“

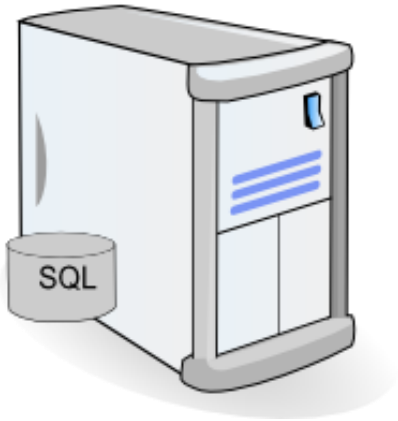
Thema := Wetter

Sensor Observation Service

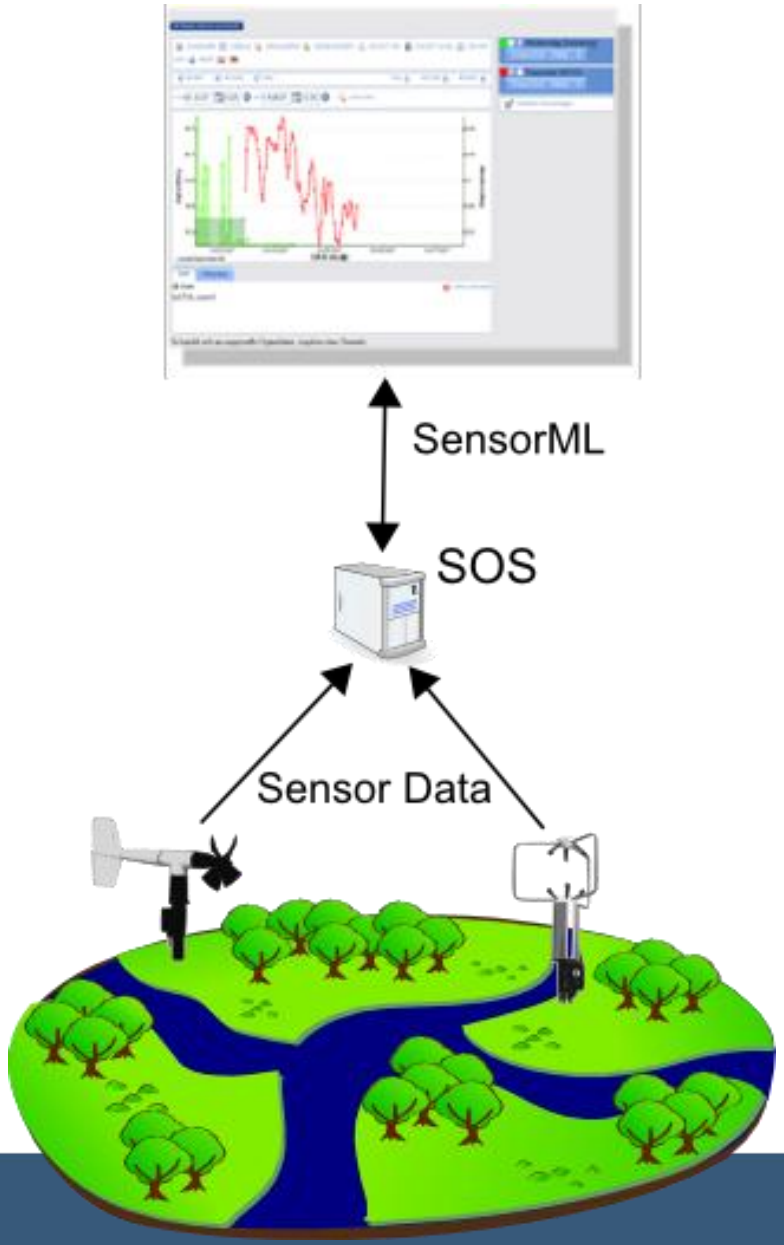
SensorML



SOS



Überblick: SOS



Client Demo

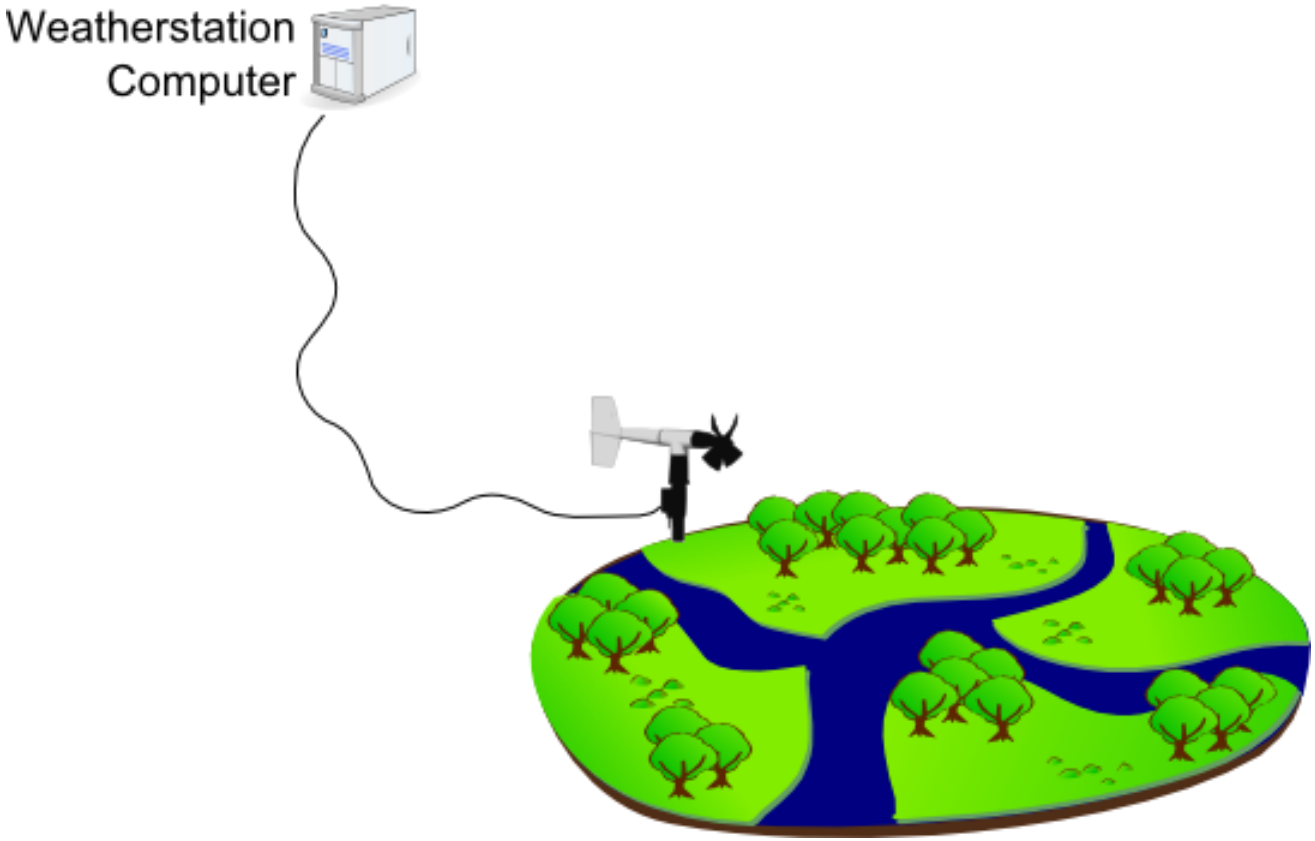
- → Link

Ziel: Wetterstation Havixbeck ins Sensor Web

DAVIS Wetterstation

Arne Broering - broering@52north.org

Anbindung: Wetterstation - Computer



- Wetterstations-Protokoll:

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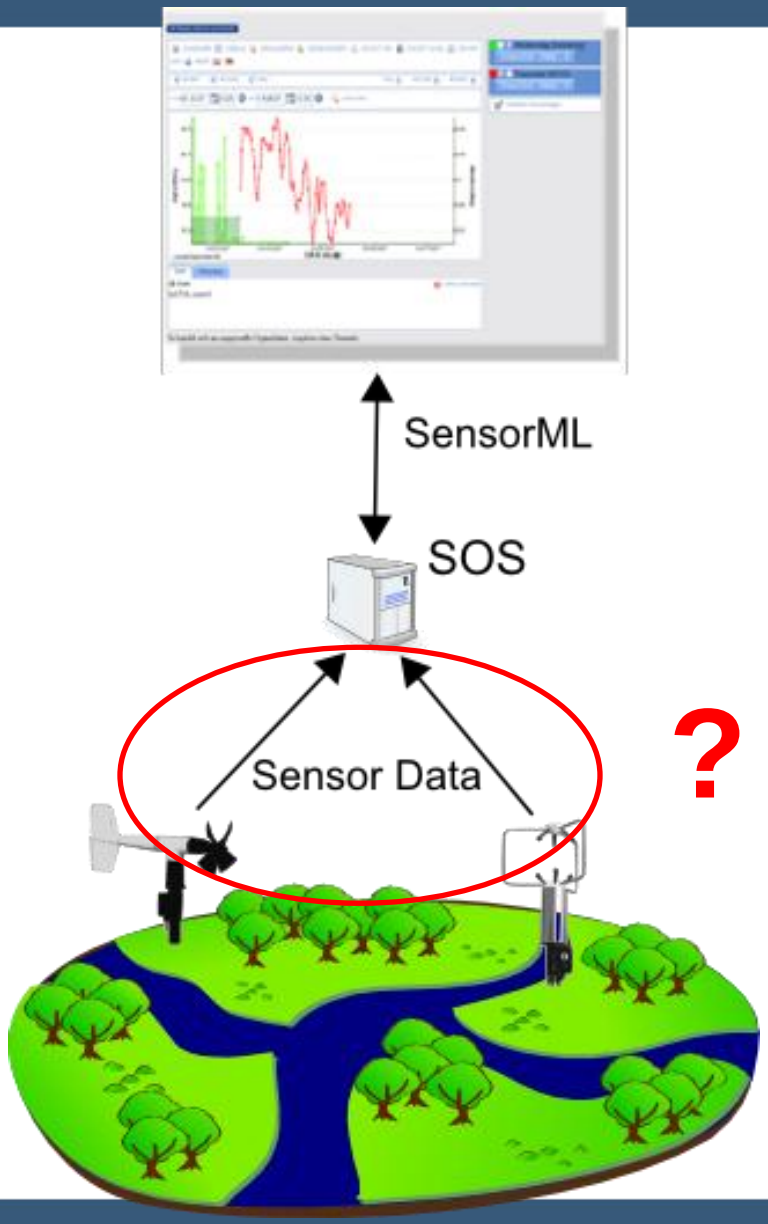
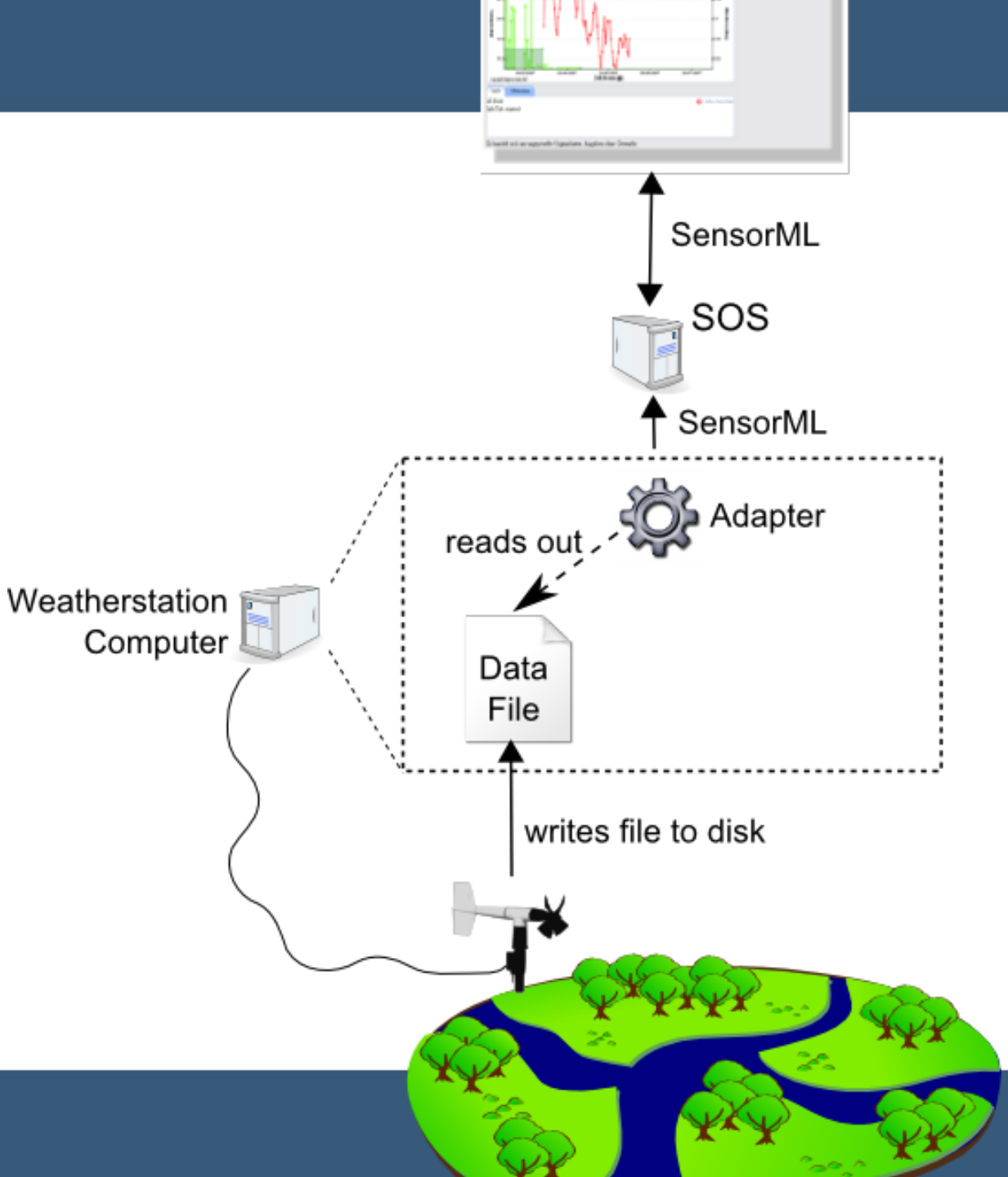
WindDirectionSensor;WindDirection;270;deg#
```

Wie bringt man die gemessenen Daten in den **SOS Server**?

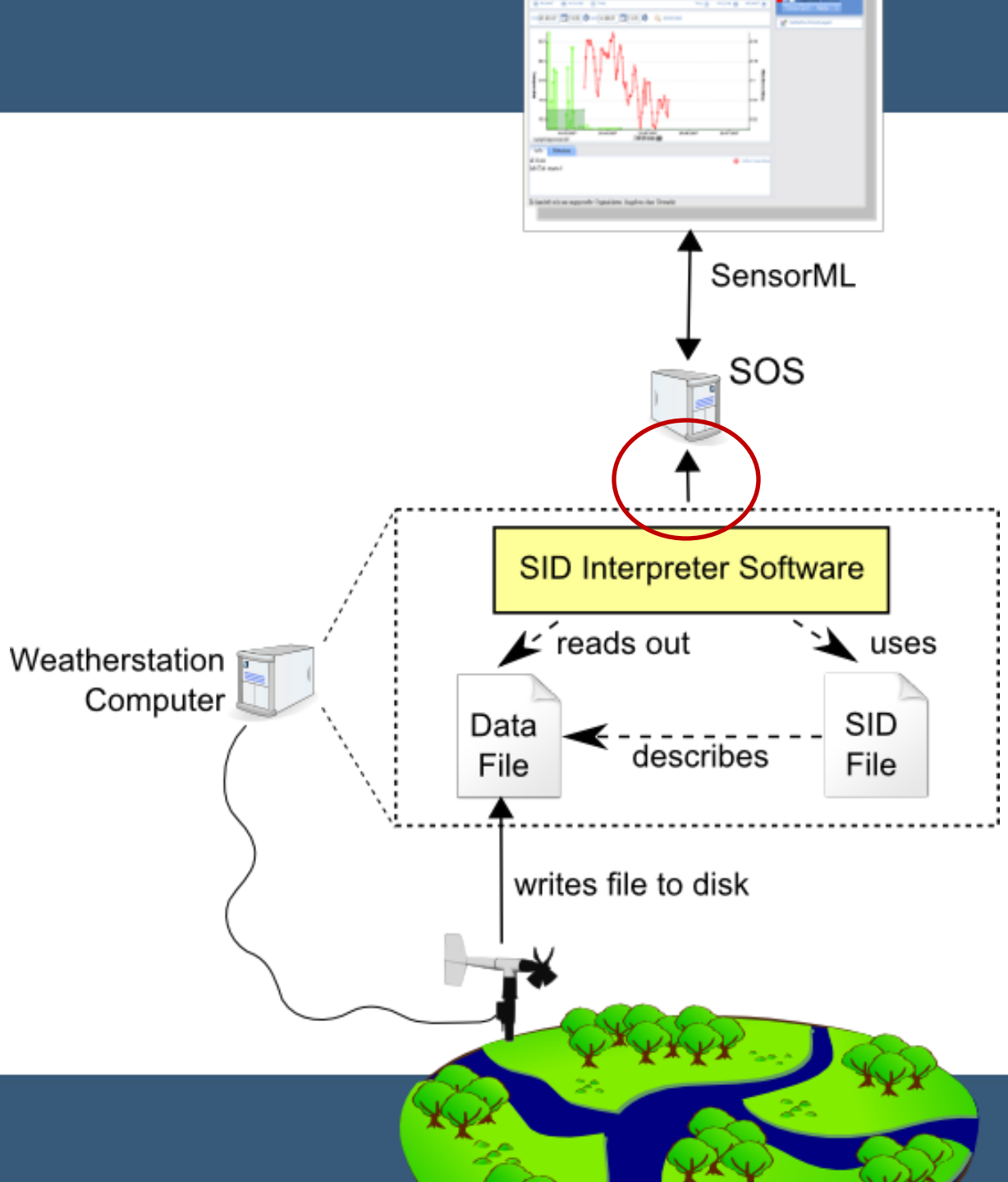

SensorML
SOS
Sensor Data
?

1.) Adapter Programmieren!


SensorML
SOS
SensorML
Adapter
reads out
Weatherstation
Computer
Data
File
writes file to disk

2.) **Grafische Erstellung von Adaptern** mit

Sensor Interface Descriptors (SIDs) **!**


SensorML
SOS
SID Interpreter Software
reads out
uses
Weatherstation
Computer
Data
File
describes
SID
File
writes file to disk

Rückblick…

- Unser Wetterstations-Protokoll:

```
Sensor_Count;3#
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```

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|#

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

:
```

Block

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

Phänomen := „Wind Speed“

Ergebnis

Zeit

Feature := „Gymnasium Havixbeck“

23 m/s 16.9.2010 13:45

Einheit

Sensor ID := „DAVIS_123“

Sensor Name := „Davis Weather Station“

Sensor Standort := „52°N 7°E“

Thema := Wetter

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

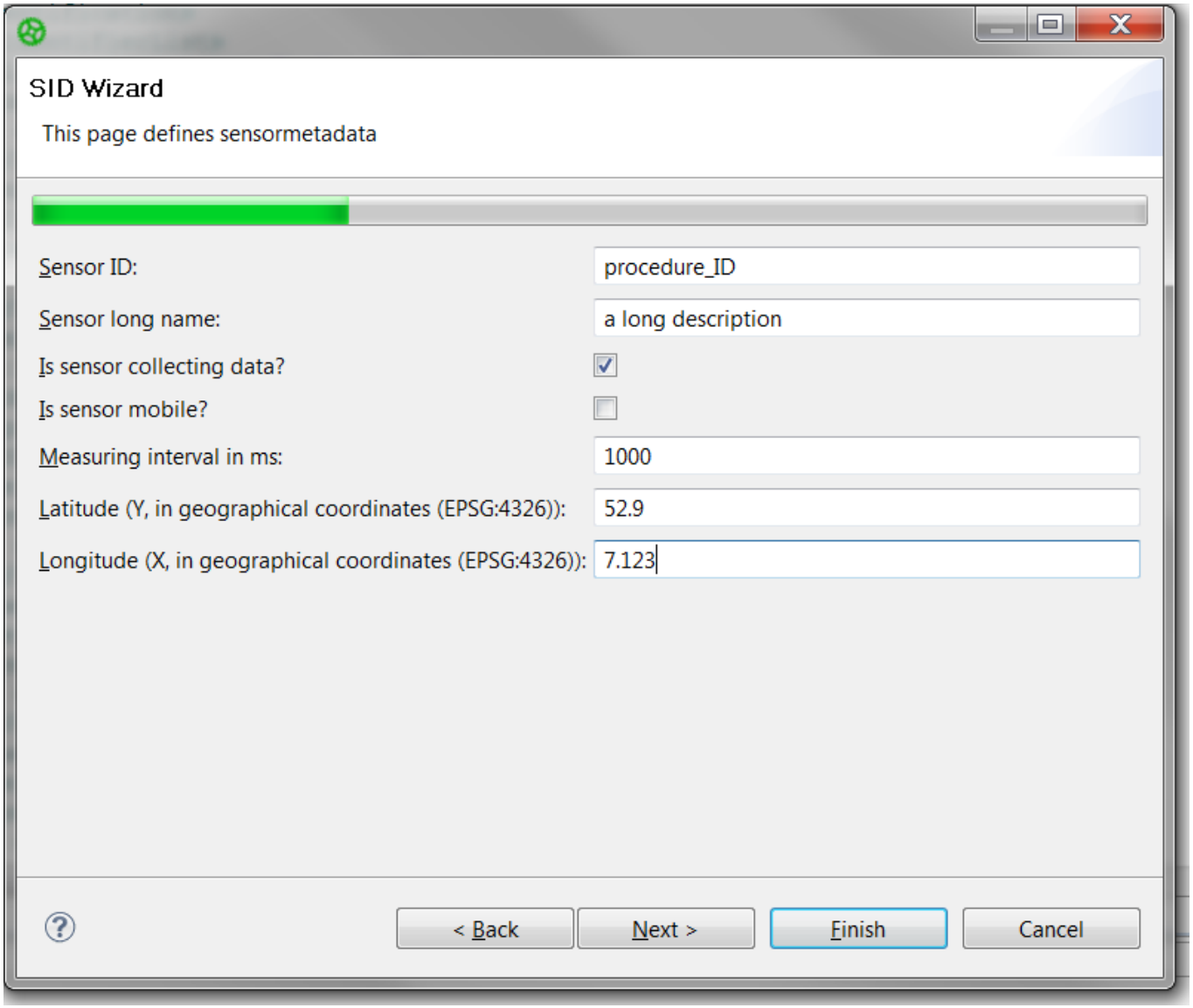
Sensor Standort = 52°N 7°E

Thema = Wetter

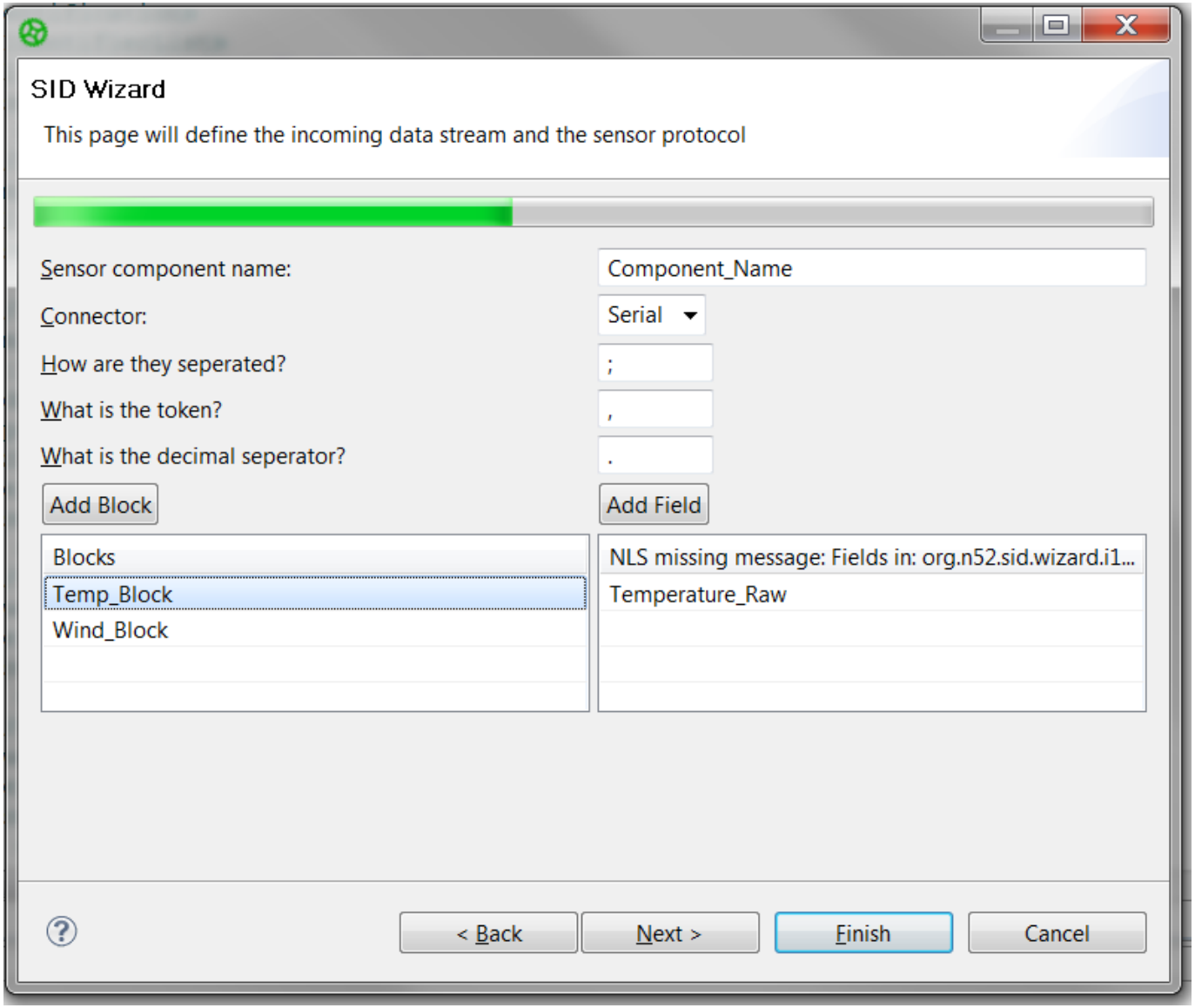
:

Ein grafisches Tool zum Erstellen von SIDs.

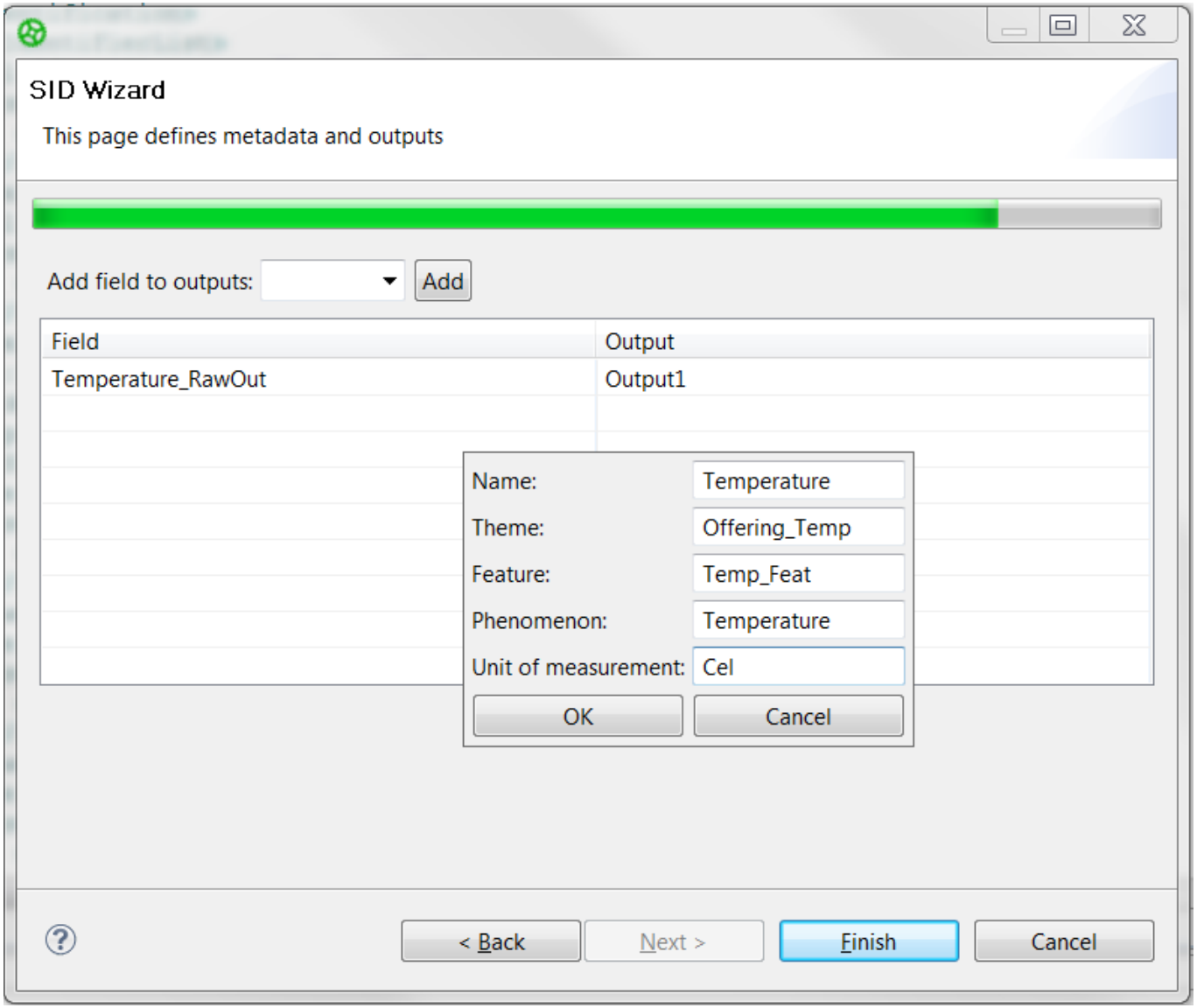
Graphical SID Creator



Graphical SID Creator



Graphical SID Creator



Questions?

Thank you!

Arne Broering

broering@52north.org