

Integrator Use Case

UNIMAN-UPM Collaboration
21 July 2010

Flood Prediction

- Wave period is > 10 seconds AND wave energy is $> X$
- Wave train will arrive at Portsmouth at time1
- High tide at Portsmouth is at time2
- Difference between time1 and time2 is $< Y$ hours

Y is dependent on:

- TideWave location
- Perhaps windspeed

```
TideWave(  
  Location:string,  
  Timestamp:int,  
  DateTime:string,  
  Observed:float,  
  Tz:float,  
  Hs:float,  
  HMax:float,  
  Tp:float  
)  
WaveEnergy  $\approx$  Hs2
```

```
FROM TideWave[NOW] w, TideTable t  
WHERE  
  Tp > 10 AND  
  (t.Hs * t.Hs) > X AND  
  t.location = 'Portsmouth' AND  
  t.highTime - w.timestamp < Y
```

CCO Data: Storm Detection

Schema

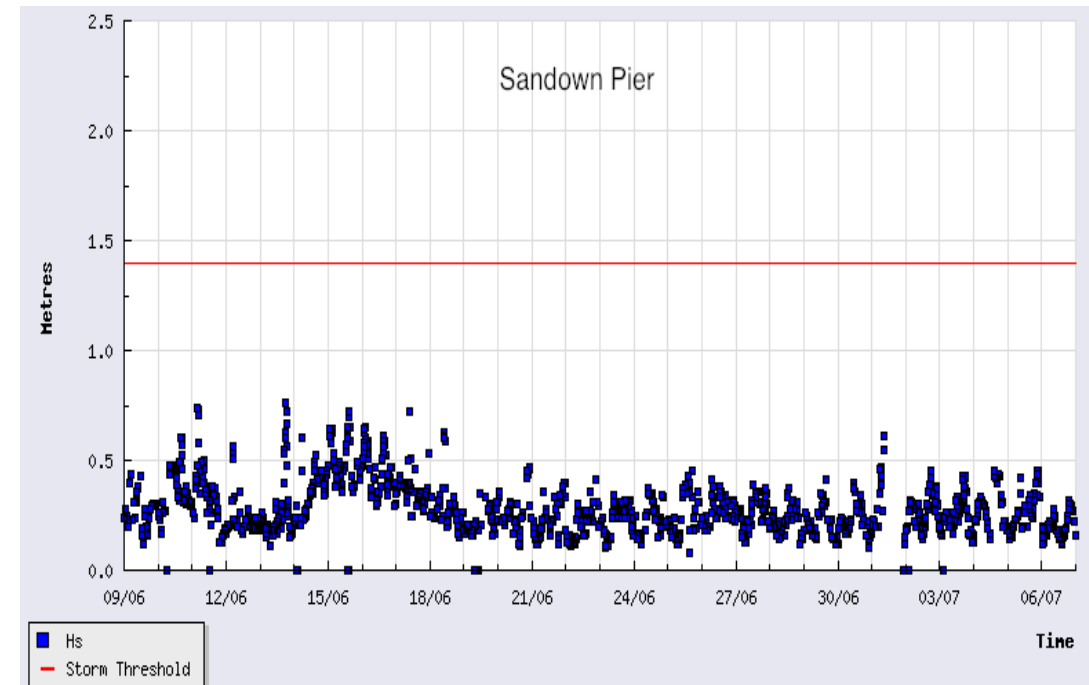
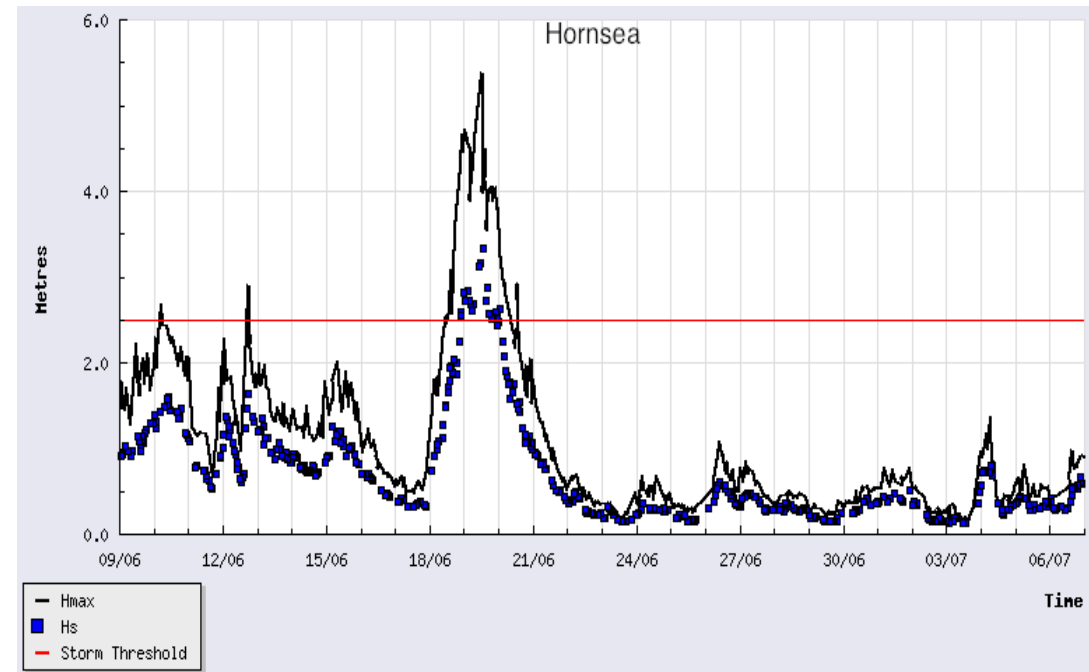
```
locations (location:varchar,  
           storm_threshold:float)  
envdata_boscombe (timestamp:timestamp,  
                  DateTime:datetime, Lat:float,  
                  Lon:float, Hs:float, HMax:float,  
                  Tp:float, Tz:float, Sprp:float,  
                  Dirp:float, TSea:float)
```

Query to detect storm events:

```
SELECT l.location, w.Hs, w.HMax  
FROM   wave w, locations l  
WHERE  w.location = l.location AND  
       (w.Hs >= l.storm_threshold OR  
        w.HMax >= l.storm_threshold)
```

Requires view wave to be created.

Query could be extended to ensure that it was not a one-off event.



User is interested in flood events around the area of South England.

- 1) Query is issued in order to obtain the average tide height in the last 2 hours.
 - In order to do so both the CCO and BODC data are consulted.
 - In both cases the area is given by the name of the stream/table
 - Wave height of WaveNet available as html - not usable (Could be with screen scraping in the worst case. However, SOTON were going to talk to the person who publishes this data.)
 - This is a horizontal integration of the 2 sources.
- 2) Query is issued to get the max windspeed in the last hour.
 - get data from CCO
 - get data from Met Office RSS
 - horizontal integration again
 - can we query 1) and 2) in one integrated query, include maybe some condition on tide height and windspeed to raise event?
- 3) Upon 2) user is interested in getting more information on the area that is registering anomaly (e.g. Portsmouth)
 - get transportation stops in the area (potentially affected). By postcode (still to find how to link naptan to postcodes!) Can this be got through linking with the Gazetteer ([NPTG](#)) -Alasdair Gray 07/06/2010 14:53
 - get schools (from data.gov.uk sparql linked data) by postcode
 - get hospitals (from data.gov.uk linked data) by postcode
 - the integrated query in 3) would be a vertical integration of 2 rdf stored sources + the result of a refinement of 2) which is a streaming integrated source.

Integrator External Data Sources (1)

UK government data

- Large collection of data sources
- Variety of data formats
- Identified a few candidate sources

WaveNet

- Similar data and coverage to CCO
- Add source, wrap-it
- Create mappings CCO, WaveNet - Integrated View
- Identify potential integrated queries

OGC-SWE Sensor Observation Service (SOS) data sources

- No accessible sources for Europe

Integrator External Data Sources (2)

European Space Agency

- Variety of data sources
- Publicly available

Earthnet

- Fire risk assessment index value

SeaDataNet

- Data originating from a variety of federated sources
- Covers the entire globe

NAPTAN/NPTG

National Public Transport Access Nodes

- Details of every public transport stop in the UK

National Public Transport Gazette

- Contact, regional information

Data set

- Updated every quarter
- CC-BY-SA license
 - Attribution + ShareAlike
 - Derivative works distributed with identical license
- Formats:
 - XML
 - CSV
- Possible links
 - Transport timetables

Data coverage:

- Regions, administrative areas, locations, etc
- Contact information

Ordnance Survey

Code-Point Open:

- Data
 - Administrative county code
 - District code
 - Ward code
 - country code
 - National grid CPLC
 - NHS authority national & regional code
 - Postcode unit
- CSV
- recreated quarterly

Ordnance Survey

Gazeteer

- Data
 - Feature
 - Coordinates
 - Northings/eastings
 - County code
 - Feature code (forest, farm, hill, city, town, water feature)
 - spatial relations (borders-of, contains-of)
- Updated annually
- CSV
- SPARQL endpoint

British Oceanographic Data Centre

UK Tide Gauge Network

- Daily checks, weekly donwloads
- processed data since 1915 available
- Raw data for latest month available (freely)
- Data
 - Site
 - Time (every 15 mins)
 - tide height
- Download text file
- Some sites in south England: Newlyn, Devonport, Weymouth, Bournemouth, Portsmouth, Newhaven, Dover, etc.

BBC/Met Office RSS

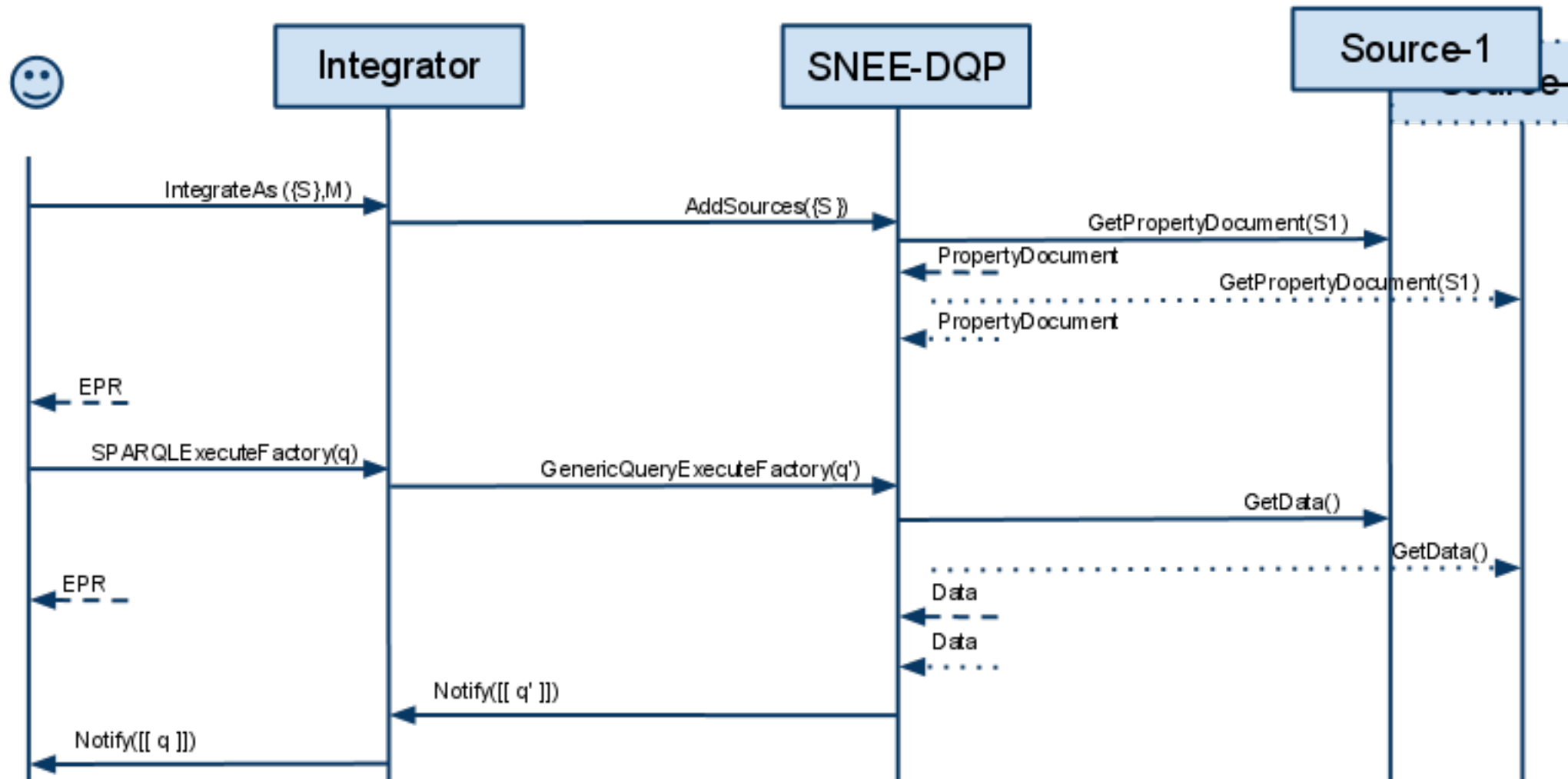
Weather latest obs/3 day prediction

- Available for locations, e.g. Colwyn Bay
- Updated twice daily
- Data:
 - Temp
 - wind direction
 - wind speed
 - relative humidity
 - pressure
 - visibility

Implementation Issues

Proposed Service Interactions

IQS - SNEE-DQP-WS



Proposed Service Interactions

IQS - SNEE-DQP-WS

