NOOS PROJECT SUMMARY: River runoff data for operational ocean forecasting

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KEYWORDS: ocean modelling, river, fresh water, runoff

River runoff data for operational ocean forecasting	
Project Aims	Make river runoff data – observed and predicted fresh water flux and nutrient/contaminant loads – available to NOOS partners for use in ocean hindcasting and forecasting, and assess the benefits derived. 1. Make **near-real-time observations** of river fluxes available to partners. 2. Make high quality **historical data sets** of observed fluxes and loads available to partners for hindcast studies. 3. Assess the availability and applicability of **prognostic river runoff data** and make recommendations for further effort. 4. Develop **best practises** for applying river runoff data in coastal ocean forecasting.
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Present status (September 2014) New or updated items in *italics*	Project tasks have been addressed in several EU projects: ECOOP T2.5, MyOcean1 miniproject, MyOcean2 IS-TAC, OPERR. Participation by several NOOS members. Task 1.1 – NRT observations inventory • River volume flux data inventory done (→ ECOOP T2.5) • Coop IBI-ROOS for French, Irish stations • Archive data for UK from Cefas • Coop IBI-ROOS for French, Irish stations Task 1.2: NRT data exchange • Data access established for major stations in France, Germany, Netherlands, Norway, Sweden. UK (incl. Scotland) is major gap. Belgium, Denmark and Ireland are minor gaps. • Deltares has implemented data collation, presentation and dissemination. Online access for viewing at http://noos.cc/index.php?id=150. See Figure 1. FTP access at ftp://noosdata.nl/ECOOP/DATA/RWS. MATROOS at Deltares accessible at matroos.deltares.nl (noos login). Data for D, NL, N + S (quasi-obs). • Data file format standardized to SDN ODV pending a netCDF standard. Metadata standard is SDN CDI. • BSH runs NOOS/MyOcean data portal that has data from F, D, NL + N, S (quasi-obs) • *Waning interest in NRT flow observations. Main use is probably online validation of E-HYPE rather than direct input to models.* Task 2.1 Archive observations archive • Done. As for NRT data. Task 2.2 Archive data exchange • *Little interest for observations → low priority* • *Cefas has compiled a good archive of obs for OSPAR – good enough?* • *E-HYPE Hindcast data (daily and monthly means 1980-2012) produced using HYPE v2.1 available at e-hypeweb.smhi.se. See Figure 2. Validated in OPERR and other projects (details from SMHI). See Figure 3, Figure 4,*

	Figure 5 and Figure 6. Task 3: Prognostic runoff data • *Met Office is now using E-HYPE data operationally and for hindcast.* • *SMHI has started an ftp feed of operational E-HYPE data to MET. Daily updated 10-day forecasts. MET is currently implementing the data in ROMS code for Nordic Seas (4km). Should be available for NOOS partners; SMHI to confirm.* • *Done.* Task 3: Best practises • *This should be main task for the future.*
Workplan	Year 2014/15: • Obs data: Continue efforts to access UK NRT observations. (MetO) • *Ensure access to E-HYPE real-time and hindcast data in ocean models by NOOS participants.* • *Poll NOOS members on how they currently apply river runoff in their modeling. Create a forum for exchanging best practises.*
Link to project docs	Description of Work ECOOP WP 2.5 description MyOcean WP3 MyRiver miniproject report OPERR description (http://www.smhi.se/en/Research/Research-departments/Oceanography/operr-operational-pan-european-river-runoff-1.16820)

Figures

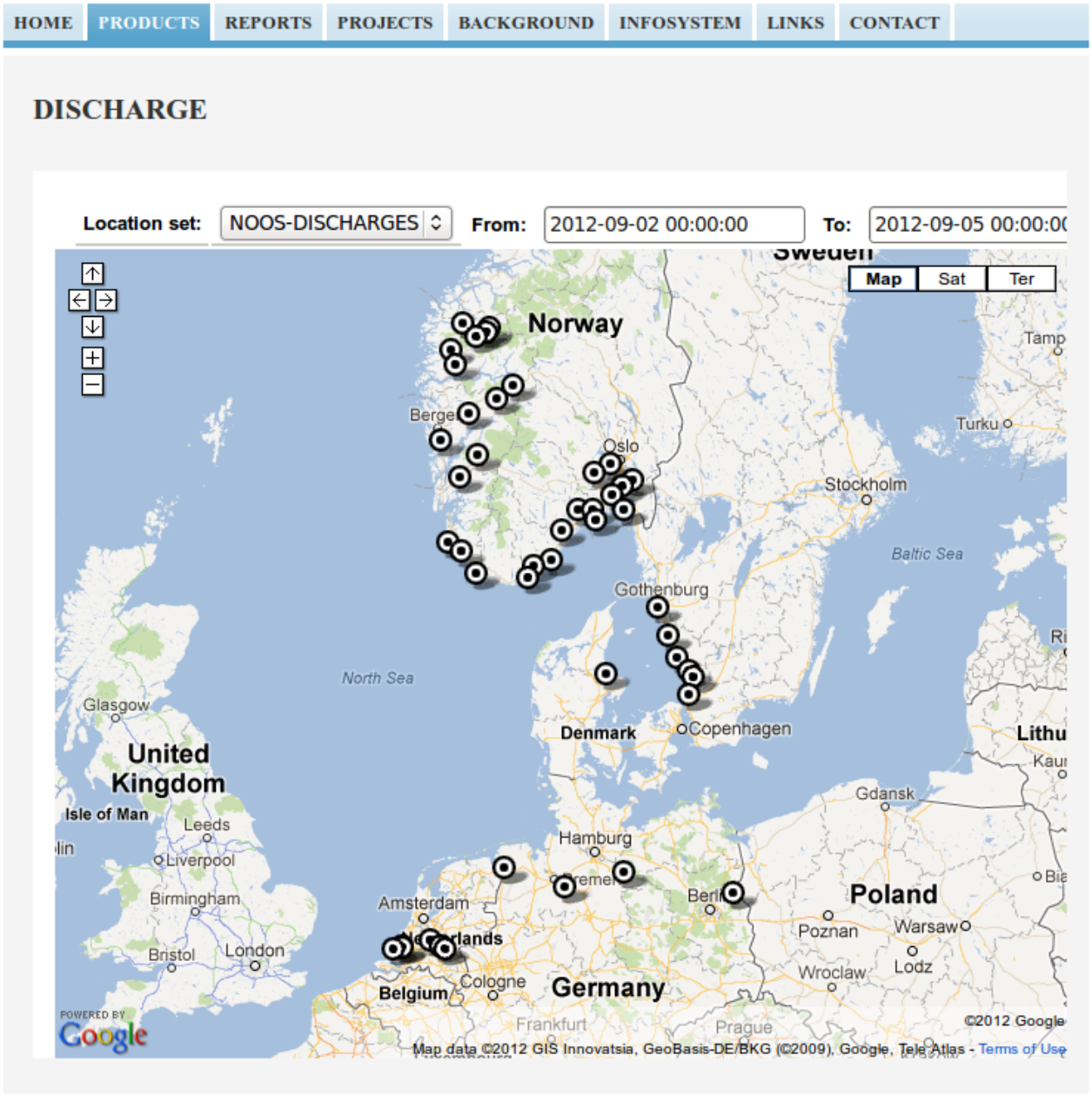

Figure 1: NOOS river discharge data viewing and access service at http://noos.cc/index.php?id=150.

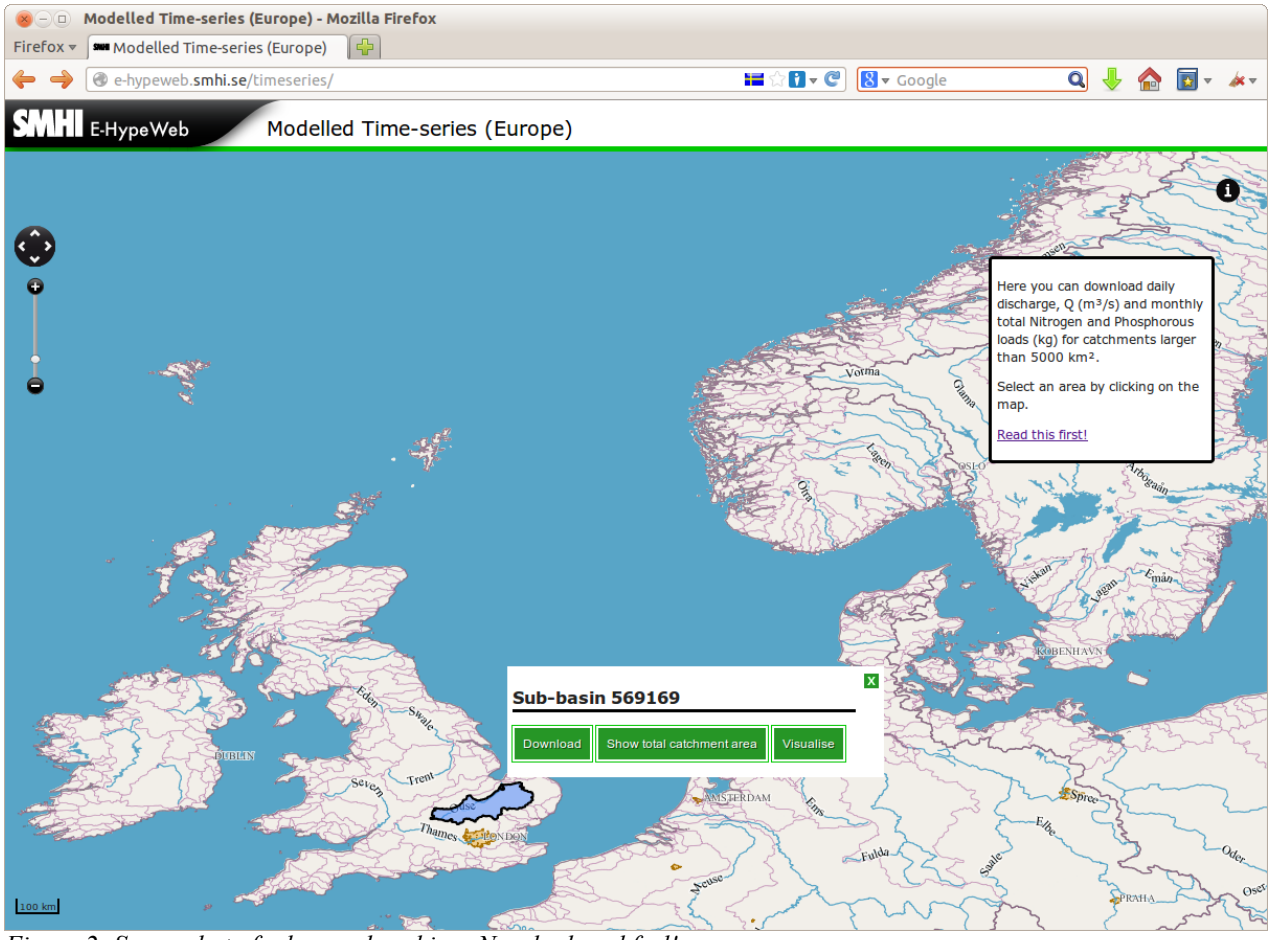

Figure 2: Screenshot of e-hypeweb.smhi.se. New look and feel!

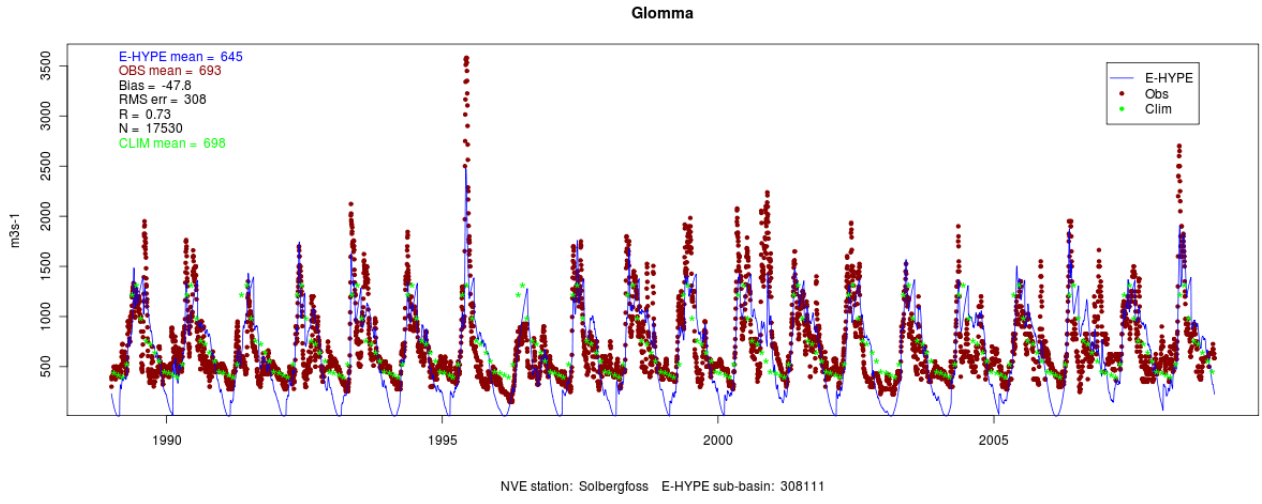

Figure 3: Validation of E-HYPE 2.1 hindcast for Solbergfoss (Glomma River), Norway. Period 1989-2008.

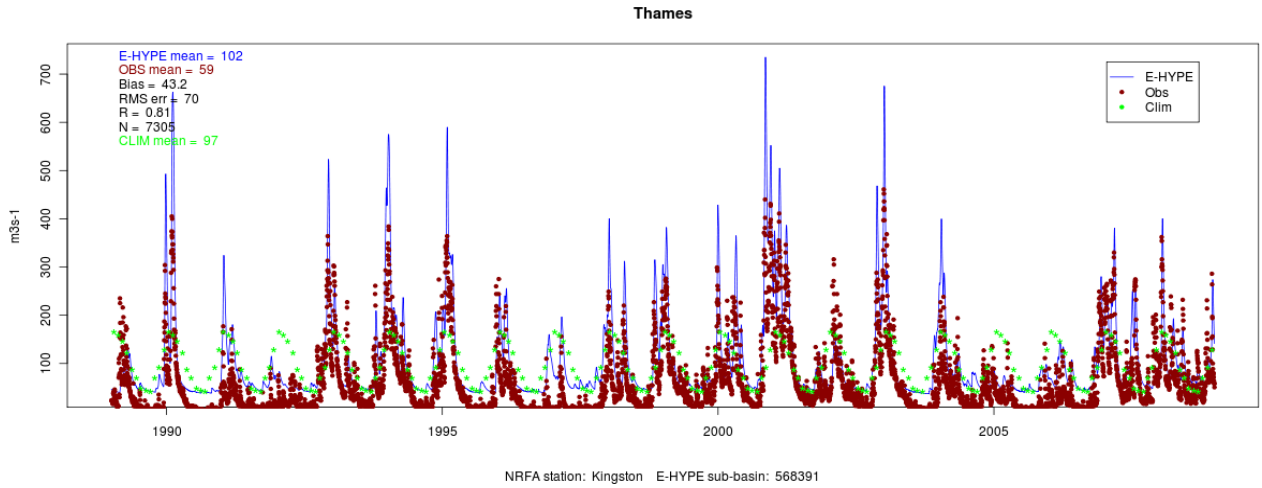

Figure 4: Validation of E-HYPE 2.1 hindcast for Kingston (Thames), UK. Period 1989-2008.

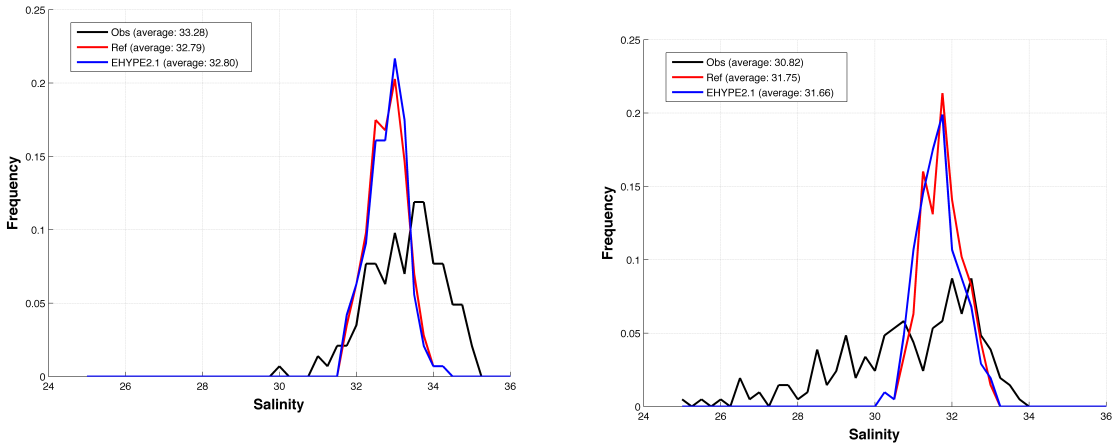

Figure 5: Probability density function (PDF) of salinity for the period 1985-2008 for Danish Coastal Water (left) and Norwegian Coastal Water (right) along the Torungen-Hirtshals transect.

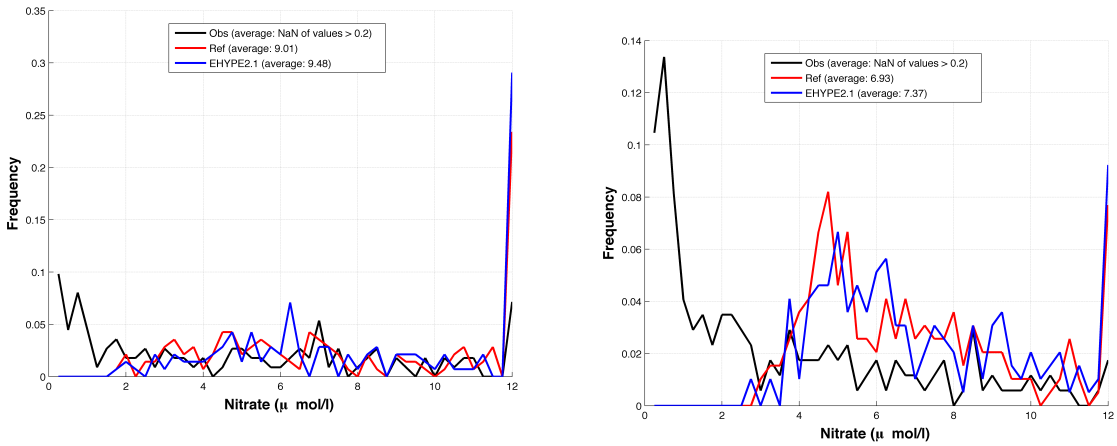

Figure 6: Probability density function (PDF) of nitrate for the period 1985-2008 for Danish Coastal Water (left) and Norwegian Coastal Water (right) along the Torungen-Hirtshals transect.