



Atmospheric Chemistry and Physics (ACP)

Global emission projections for the transportation sector using dynamic technology modelling

In this study, global emissions of gases and particles from the transportation sector are projected from the year 2010 to 2050. The Speciated Pollutant Emission Wizard (SPEW)-Trend model, a dynamic model that links the emitter population to its emission characteristics, is used to project emissions from on-road vehicles and non-road engines.

Reference

Yan, F. et al.: [Global emission projections for the transportation sector using dynamic technology modelling](#), *Atmos. Chem. Phys.*, 14, 5709–5733, 2014

Nighttime observation and chemistry of HO_x in the Pearl River Delta and Beijing in summer 2006

Nighttime HO_x chemistry was investigated in two ground-based field campaigns in summer 2006 in China by comparing measured and modelled concentration data of OH and HO₂. The measurement sites were located in a rural environment in the Pearl River Delta under urban influence and in a suburban area close to Beijing, respectively.

Reference

Lu, K. D. et al.: [Nighttime observation and chemistry of HO_x in the Pearl River Delta and Beijing in summer 2006](#), *Atmos. Chem. Phys.*, 14, 4979–4999, 2014

Atmospheric Measurement Techniques (AMT)

EARLINET: towards an advanced sustainable European aerosol lidar network

This paper gives an overview of the European Aerosol Research Lidar Network (EARLINET) main developments since 2000 and introduces the dedicated EARLINET special issue. This issue reports on the present innovative and comprehensive technical solutions and scientific results related to the use of advanced lidar remote sensing techniques for the study of aerosol properties as developed within the network in the last 13 years.

References

Pappalardo, G. et al.: [EARLINET: towards an advanced sustainable European aerosol lidar network](#), *Atmos. Meas. Tech.*, 7, 2389–2409, 2014
AMT Special Issue: [EARLINET, the European Aerosol Research Lidar Network](#), Editor(s): G. Pappalardo, A. Ansmann, R. Ferrare, and N. Sugimoto

Past changes in the vertical distribution of ozone – Part 1: Measurement techniques, uncertainties and availability

This paper presents an overview of stratospheric ozone profile measurement data sets (ground and satellite based) available for ozone recovery studies. It documents measurement techniques, spatial and temporal coverage, vertical resolution, native units and measurement uncertainties. In addition, the latest data versions are briefly described (including data version updates as well as detailing multiple retrievals when available for a given satellite instrument). Archive location information for each data set is also given.

Reference

Hassler, B. et al.: [Past changes in the vertical distribution of ozone – Part 1: Measurement techniques, uncertainties and availability](#), *Atmos. Meas. Tech.*, 7, 1395–1427, 2014

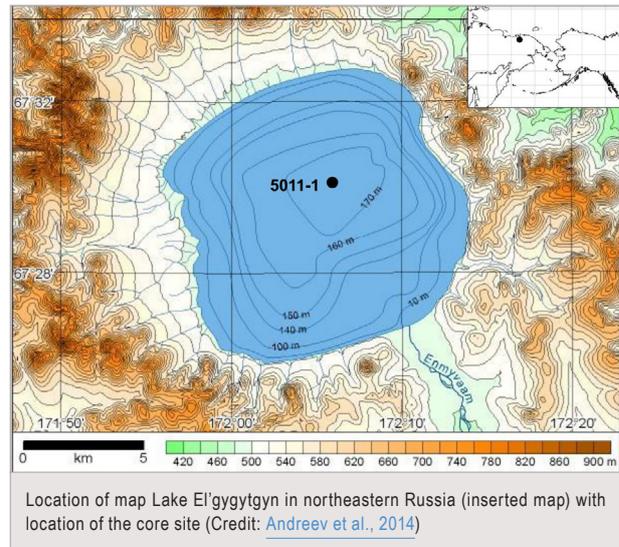
Climate of the Past (CP)

Late Pliocene and Early Pleistocene vegetation history of northeastern Russian Arctic inferred from the Lake El'gygytyn pollen record

The 318 m thick lacustrine sediment record from Lake El'gygytyn, northeastern Russian Arctic cored by the international El'gygytyn Drilling Project provides unique opportunities for the time-continuous reconstruction of the regional palaeoenvironmental history for the past 3.6 Myr. This paper presents an analysis of this record.

Reference

Andreev, A. A. et al.: [Late Pliocene and Early Pleistocene vegetation history of northeastern Russian Arctic inferred from the Lake El'gygytyn pollen record](#), *Clim. Past*, 10, 1017–1039, 2014



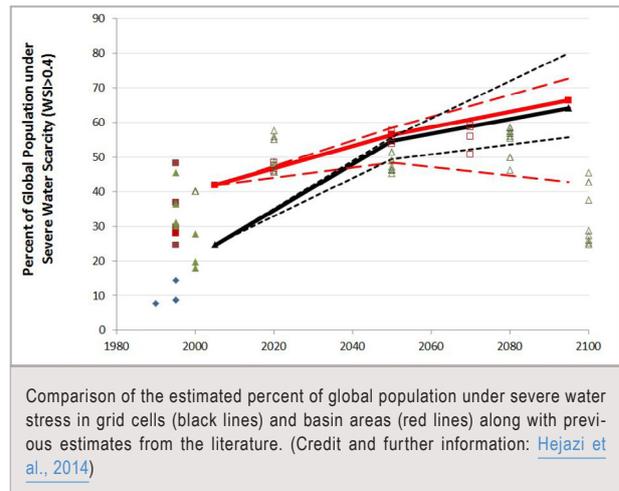
Hydrology and Earth System Sciences (HESS)

Integrated assessment of global water scarcity over the 21st century under multiple climate change mitigation policies

Water scarcity conditions over the 21st century both globally and regionally are assessed in the context of climate change and climate mitigation policies, by estimating both water availability and water demand within the Global Change Assessment Model, a leading community-integrated assessment model of energy, agriculture, climate and water.

Reference

Hejazi, M. I. et al.: [Integrated assessment of global water scarcity over the 21st century under multiple climate change mitigation policies](#), *Hydrol. Earth Syst. Sci.*, 18, 2859–2883, 2014



Impact of modellers' decisions on hydrological a priori predictions

Researchers report the discharge predictions of 10 modellers – using the model of their choice – for the man-made Chicken Creek catchment (6 ha, northeast Germany) and analyse how well they improved their prediction in three steps based on adding information prior to each following step.

Reference

Holländer, H. M. et al.: [Impact of modellers' decisions on hydrological a priori predictions](#), *Hydrol. Earth Syst. Sci.*, 18, 2065–2085, 2014

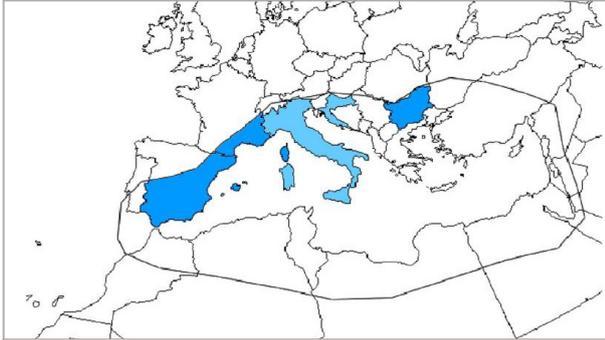
Joint Editorial: On the future of journal publications in hydrology

In this joint editorial, a group of editors from hydrology journals discuss a number of actions to help strengthen publications and research in hydrology as a whole.

Reference

Blöschl, G. et al.: [Joint Editorial 'On the future of journal publications in hydrology'](#), *Hydrol. Earth Syst. Sci.*, 18, 2433–2435, 2014

Natural Hazards and Earth System Sciences (NHESS)



Zones with data in the calendar of high impact weather events included in the MEDEX database. Dark blue corresponds to areas with high density of stations and light blue to zones with low density of stations. (Credit: [Jansa et al., 2014](#))

MEDEX: a general overview

The general objective of the international MEDiterranean EXperiment (MEDEX) was to better understand and forecast cyclones that produce high-impact weather in the Mediterranean. This paper reviews the motivation and foundation of MEDEX, the gestation, history and organisation of the project, as well as the main products and scientific achievements obtained from it.

Reference

Jansa, A. et al.: [MEDEX: a general overview](#), Nat. Hazards Earth Syst. Sci., 14, 1965–1984, 2014

Ocean Science (OS)

Weighing the ocean with bottom-pressure sensors: robustness of the ocean mass annual cycle estimate

A team of researchers used ocean bottom-pressure measurements from 17 tropical sites to determine the annual cycle of ocean mass. In this paper they show that such a calculation is robust, and use three methods to estimate errors in the mass determination.

Reference

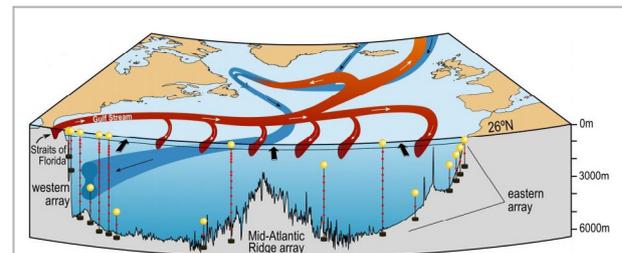
Williams, J. et al.: [Weighing the ocean with bottom-pressure sensors: robustness of the ocean mass annual cycle estimate](#), Ocean Sci., 10, 701–718, 2014

Impact of a 30% reduction in Atlantic meridional overturning during 2009–2010

The Atlantic meridional overturning circulation comprises warm upper waters flowing northward, becoming colder and denser until they form deep waters in the Labrador and Nordic Seas that then return southward through the North and South Atlantic. A team has been monitoring the circulation at 25° N since 2004 and report on the results in this paper.

Reference

Bryden, H. L. et al.: [Impact of a 30% reduction in Atlantic meridional overturning during 2009–2010](#), Ocean Sci., 10, 683–691, 2014



Schematic of Rapid monitoring system for the Atlantic meridional overturning circulation (AMOC) at 26 degrees N. (Credit: [Bryden et al., 2014](#))

Sources of 21st century regional sea-level rise along the coast of northwest Europe

There are various contributions to sea level rise, including effects in the solid Earth, gravity field, changes in ocean mass due to ice loss from ice sheets and glaciers, thermal expansion, alterations in ocean circulation driven by climate change and changing freshwater fluxes, and the intensity of storm surges. Focusing on the coastline of northwest Europe, the authors consider these processes and their relative impact on 21st century regional mean sea levels and the 50-year return flood height.

Reference

Howard, T. et al.: [Sources of 21st century regional sea-level rise along the coast of northwest Europe](#), Ocean Sci., 10, 473–483, 2014

Solid Earth (SE)

Physicochemical changes in pyrogenic organic matter (biochar) after 15 months of field ageing

Predicting the effects of pyrogenic organic matter (OM) addition (either natural or intentional as in the case of biochar amendment) on soil chemistry and crop yields has been hampered by a lack of understanding of how pyrogenic OM evolves in the environment over time. This work compared the physicochemical characteristics of newly made and 15-month-field-aged biochars and biochar–soil mixtures.

Reference

Mukherjee, A. et al.: [Physicochemical changes in pyrogenic organic matter \(biochar\) after 15 months of field ageing](#), *Solid Earth*, 5, 693–704, 2014

Crop residue decomposition in Minnesota biochar-amended plots

Impacts of biochar application at laboratory scales are routinely studied, but impacts of biochar application on decomposition of crop residues at field scales have not been widely addressed. The priming or hindrance of crop residue decomposition could have a cascading impact on soil processes, particularly those influencing nutrient availability. The aim of this paper is to evaluate biochar effects on field decomposition of crop residue, using plots that were amended with biochars made from different plant-based feedstocks and pyrolysis platforms in the fall of 2008.

Reference

Weyers, S. L. and Spokas, K. A.: [Crop residue decomposition in Minnesota biochar-amended plots](#), *Solid Earth*, 5, 499–507, 2014

The Cryosphere (TC)

Ice-ocean interaction and calving front morphology at two west Greenland tidewater outlet glaciers

In this paper, researchers present a suite of fjord salinity, temperature, turbidity versus depth casts along with glacial runoff estimation from Rink and Store glaciers, two major marine outlets draining the western sector of the Greenland Ice Sheet during 2009 and 2010. They characterise the main water bodies present and interpret their interaction with their respective calving fronts.

Reference

Chauché, N. et al.: [Ice-ocean interaction and calving front morphology at two west Greenland tidewater outlet glaciers](#), *The Cryosphere*, 8, 1457–1468, 2014

A high-resolution bedrock map for the Antarctic Peninsula

Assessing and projecting the dynamic response of glaciers on the Antarctic Peninsula to changed atmospheric and oceanic forcing requires high-resolution ice thickness data as an essential geometric constraint for ice flow models. In this study, researchers derive a complete bedrock data set for the Antarctic Peninsula north of 70° S on a 100 m grid.

Reference

Huss, M. and Farinotti, D.: [A high-resolution bedrock map for the Antarctic Peninsula](#), *The Cryosphere*, 8, 1261–1273, 2014

Modelled Arctic sea ice evolution through 2300 in CMIP5 extended RCPs

Extended representative concentration pathway simulations through 2300 were completed for a subset of models. In this study, researchers examine the time evolution of Arctic sea ice in these simulations.

Reference

Hezel, P. J., Fichefet, T., and Massonnet, F.: [Modelled Arctic sea ice evolution through 2300 in CMIP5 extended RCPs](#), *The Cryosphere*, 8, 1195–1204, 2014

The sub-ice platelet layer and its influence on freeboard to thickness conversion of Antarctic sea ice

This paper reports on an investigation to quantify the influence of the sub-ice platelet layer on satellite measurements of total freeboard and their conversion to thickness of Antarctic sea ice.

Reference

Price, D. et al.: [The sub-ice platelet layer and its influence on freeboard to thickness conversion of Antarctic sea ice](#), *The Cryosphere*, 8, 1031–1039, 2014