



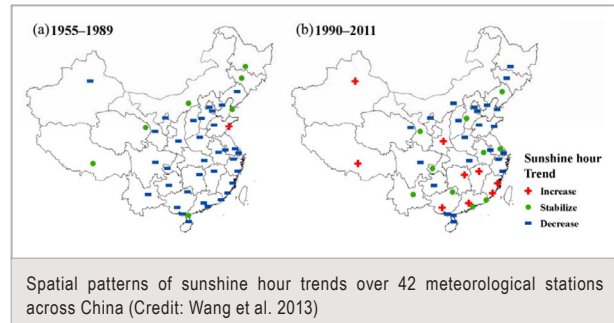
## Annales Geophysicae (ANGEO)

### China's dimming and brightening: evidence, causes and hydrological implications

In this paper, the authors synthesise reliable results and conclusively address recent advances and insufficiencies in studies on dimming and brightening in China.

#### Reference

Wang, Y. W. and Yang, Y. H.: [China's dimming and brightening: evidence, causes and hydrological implications](#), *Ann. Geophys.*, 32, 41–55, 2014



## Atmospheric Chemistry and Physics (ACP)

### Incidence of rough and irregular atmospheric ice particles from Small Ice Detector 3 measurements

Two-dimensional light-scattering patterns were obtained in situ for the first time using the Small Ice Detector 3 (SID-3) probe during several flights in a variety of mid-latitude mixed-phase and cirrus clouds. The patterns are analysed using several measures of pattern texture, selected to reveal the magnitude of particle roughness or complexity.

#### Reference

Ulanowski, Z. et al.: [Incidence of rough and irregular atmospheric ice particles from Small Ice Detector 3 measurements](#), *Atmos. Chem. Phys.*, 14, 1649–1662, 2014

### Arctic stratospheric dehydration – Part 1: Unprecedented observation of vertical redistribution of water

This paper presents high-resolution measurements of water vapour, aerosols and clouds in the Arctic stratosphere in January and February 2010 carried out by in situ instrumentation on balloon sondes and high-altitude aircraft combined with satellite observations.

#### Reference

Khaykin, S. M. et al.: [Arctic stratospheric dehydration – Part 1: Unprecedented observation of vertical redistribution of water](#), *Atmos. Chem. Phys.*, 13, 11503–11517, 2013

### Microphysical properties and high ice water content in continental and oceanic mesoscale convective systems and potential implications for commercial aircraft at flight altitude

Two complementary case studies are conducted to analyse convective system properties in the region where strong cloud-top lidar backscatter anomalies are observed as reported by Platt et al. (2011).

#### Reference

Gayet, J.-F. et al.: [Microphysical properties and high ice water content in continental and oceanic mesoscale convective systems and potential implications for commercial aircraft at flight altitude](#), *Atmos. Chem. Phys.*, 14, 899–912, 2014

### Quantifying aerosol mixing state with entropy and diversity measures

This paper presents the first quantitative metric for aerosol population mixing state, defined as the distribution of per-particle chemical species composition.

#### Reference

Riemer, N. and West, M.: [Quantifying aerosol mixing state with entropy and diversity measures](#), *Atmos. Chem. Phys.*, 13, 11423–11439, 2013

## Biogeosciences (BG)

### Regional variability of acidification in the Arctic: a sea of contrasts

In this study, the authors use an ocean-only general circulation model, with embedded biogeochemistry and a comprehensive description of the ocean carbon cycle, to study the response of pH and saturation states of calcite and aragonite to rising atmospheric pCO<sub>2</sub> and changing climate in the Arctic Ocean.

#### Reference

Popova, E. E. et al.: [Regional variability of acidification in the Arctic: a sea of contrasts](#), *Biogeosciences*, 11, 293–308, 2014

### Seasonal variations of sea–air CO<sub>2</sub> fluxes in the largest tropical marginal sea (South China Sea) based on multiple-year underway measurements

Based on 14 field surveys conducted between 2003 and 2008, this paper shows that the seasonal pattern of sea surface partial pressure of CO<sub>2</sub> and sea–air CO<sub>2</sub> fluxes differed among four different physical–biogeochemical domains in the South China Sea proper.

#### Reference

Zhai, W.-D. et al.: [Seasonal variations of sea–air CO<sub>2</sub> fluxes in the largest tropical marginal sea \(South China Sea\) based on multiple-year underway measurements](#), *Biogeosciences*, 10, 7775–7791, 2013

## Climate of the Past (CP)

### Salinity changes in the Agulhas leakage area recorded by stable hydrogen isotopes of C<sup>37</sup> alkenones during Termination I and II

Here the authors reconstructed sea surface salinity changes using alkenone δD, and palaeo-sea surface temperature using TEX<sup>H</sup><sub>86</sub> and U<sup>K</sup><sub>37</sub>, from two sediment cores located in the Agulhas leakage area during Termination I and II.

#### Reference

Kasper, S. et al.: [Salinity changes in the Agulhas leakage area recorded by stable hydrogen isotopes of C<sup>37</sup> alkenones during Termination I and II](#), *Clim. Past*, 10, 251–260, 2014

### Using palaeo-climate comparisons to constrain future projections in CMIP5

This paper presents a selection of methodologies for using the palaeo-climate model component of the Coupled Model Intercomparison Project (Phase 5) to attempt to constrain future climate projections using the same models.

#### Reference

Schmidt, G. A. et al.: [Using palaeo-climate comparisons to constrain future projections in CMIP5](#), *Clim. Past*, 10, 221–250, 2014

## Geoscientific Instrumentation, Methods and Data Systems (GI)

### Autonomous thermal camera system for monitoring the active lava lake at Erebus volcano, Antarctica

In December 2012, Mount Erebus Volcano Observatory installed a thermal infrared camera system to monitor the volcano's active lava lake. The new system is designed to be autonomous, and capable of capturing images of the lava lake continuously throughout the year.

#### Reference

Peters, N., Oppenheimer, C., and Kyle, P.: [Autonomous thermal camera system for monitoring the active lava lake at Erebus volcano, Antarctica](#), *Geosci. Instrum. Method. Data Syst.*, 3, 13–20, 2014

### The surface temperatures of Earth: steps towards integrated understanding of variability and change

In June 2012, the EarthTemp Network brought together 55 researchers from five continents to improve the interaction between scientific communities who focus on surface temperature in particular domains, to exploit the strengths of different observing systems and to better meet the needs of different communities.

#### Reference

Merchant, C. J. et al.: [The surface temperatures of Earth: steps towards integrated understanding of variability and change](#), *Geosci. Instrum. Method. Data Syst.*, 2, 305–321, 2013

## Hydrology and Earth System Sciences (HESS)

### Quantifying mesoscale soil moisture with the cosmic-ray rover

Existing techniques measure soil moisture either at a point or over a large area many kilometers across. The cosmic-ray rover, an instrument similar to the recently developed COSMOS probe, but bigger and mobile, bridges these two scales. This paper explores the challenges and opportunities for mapping soil moisture over large areas using the cosmic-ray rover.

#### Reference

Chrisman, B. and Zreda, M.: [Quantifying mesoscale soil moisture with the cosmic-ray rover](#), Hydrol. Earth Syst. Sci., 17, 5097–5108, 2013

### Statistical analysis to characterise transport of nutrients in groundwater near an abandoned feedlot

Surface water from a lagoon and groundwater samples from 17 wells within and near an abandoned feedlot in northwestern Minnesota, USA, were analysed for carbon, nutrients, and field parameters. This study shows the value of multivariate analyses in characterising variability in groundwater quality.

#### Reference

Gbolo, P. and Gerla, P.: [Statistical analysis to characterise transport of nutrients in groundwater near an abandoned feedlot](#), Hydrol. Earth Syst. Sci., 17, 4897–4906, 2013

## Nonlinear Processes in Geophysics (NPG)

### Voyager 2 observation of the multifractal spectrum in the heliosphere and the heliosheath

This paper looks in detail at the multifractal scaling of the fluctuations in the strength of the interplanetary magnetic field as measured onboard Voyager 2 in the entire heliosphere and even in the

heliosheath. This study brings significant support to earlier claims suggesting that the solar wind termination shock is asymmetric.

#### Reference

Macek, W. M. and Wawrzaszek, A.: [Voyager 2 observation of the multifractal spectrum in the heliosphere and the heliosheath](#), Nonlin. Processes Geophys., 20, 1061–1070, 2013

## Ocean Science (OS)

### Observed decline of the Atlantic meridional overturning circulation 2004–2012

The Atlantic meridional overturning circulation and its component parts are monitored by combining a transatlantic array of moored instruments with submarine-cable-based measurements of the Gulf

Stream and satellite derived Ekman transport. The time series has recently been extended to October 2012 and the results show a downward trend in circulation since 2004.

#### Reference

Smeed, D. A. et al.: [Observed decline of the Atlantic meridional overturning circulation 2004–2012](#), Ocean Sci., 10, 29–38, 2014.

## Solid Earth (SE)

### Palaeosols in the Transantarctic Mountains: indicators of environmental change

Palaeosols on unconsolidated deposits are emphasised in this study. Examples are given from the McMurdo Dry Valleys (78° S) and two outlet glaciers in the central and southern Transantarctic

Mountains, including the Hatherton–Darwin Glacier region (80° S) and the Beardmore Glacier region (85°30' S).

#### Reference

Bockheim, J. G.: [Palaeosols in the Transantarctic Mountains: indicators of environmental change](#), Solid Earth, 4, 451–459, 2013