



Volume 39, Issue 14

28 July 2012

Brief Detailed

Atmospheric Science

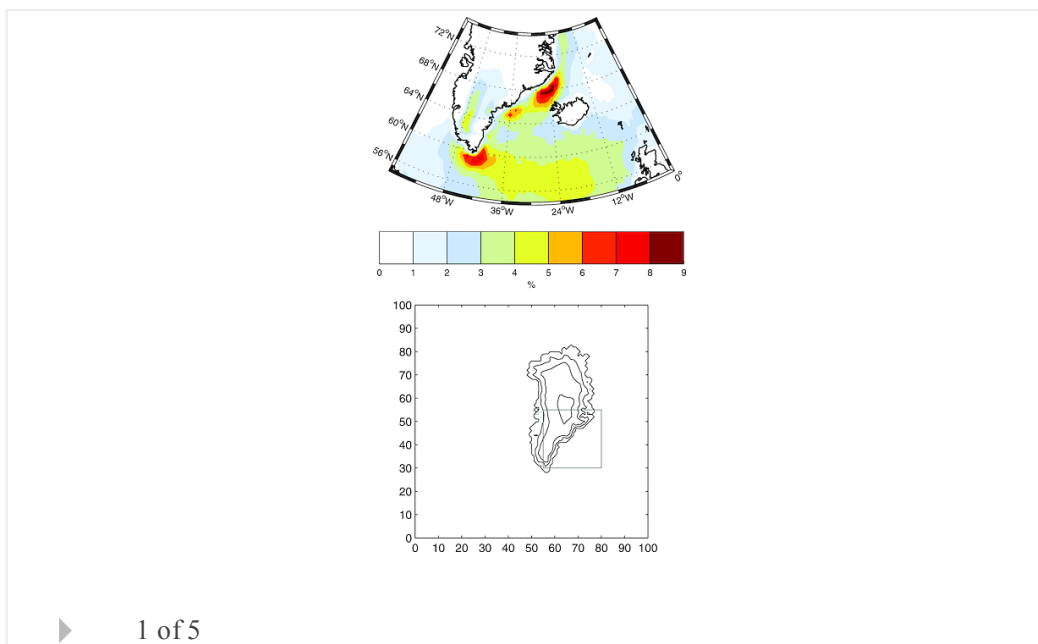
On the spatial distribution of high winds off southeast Greenland

B. E. Harden, I. A. Renfrew

First Published: 31 July 2012 Vol: 39, L14806 | DOI: 10.1029/2012GL052245

KEY POINTS

- Greenland's orography responsible for regions of enhanced barrier wind activity
- Wind speed enhancements explained by tip jet and mountain wave mechanisms
- Both mechanisms most effective for low static stabilities



1 of 5

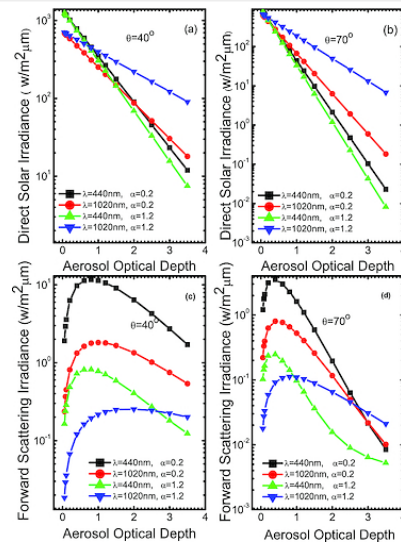
The effect and correction of aerosol forward scattering on retrieval of aerosol optical depth from Sun photometer measurements

Fengsheng Zhao, Yongbo Tan, Zhanqing Li, Changsong Gai

First Published: 28 July 2012 Vol: 39, L14805 | DOI: 10.1029/2012GL052135

KEY POINTS

- Forward scattering can affect the measurement of direct solar irradiance
- For heavy dust loading, relative errors in AOD could be more than ten percents
- A simple algorithm is presented to correct the errors



▶ 1 of 5

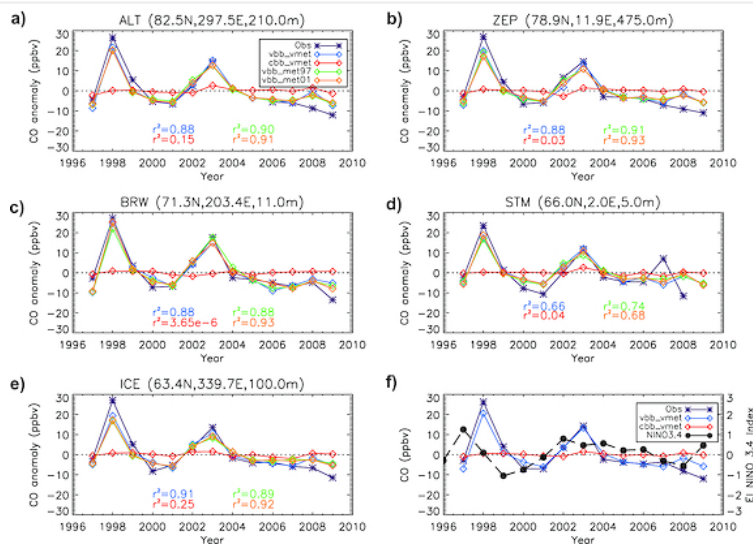
Evidence for El Niño–Southern Oscillation (ENSO) influence on Arctic CO interannual variability through biomass burning emissions

S. A. Monks, S. R. Arnold, M. P. Chipperfield

First Published: 28 July 2012 Vol: 39, L14804 | DOI: 10.1029/2012GL052512

KEY POINTS

- Fire emissions are the dominant driver of Arctic CO interannual variability
- ENSO influences Arctic CO interannual variability through its effect on fires
- The Arctic is most sensitive to fire emissions from the boreal regions



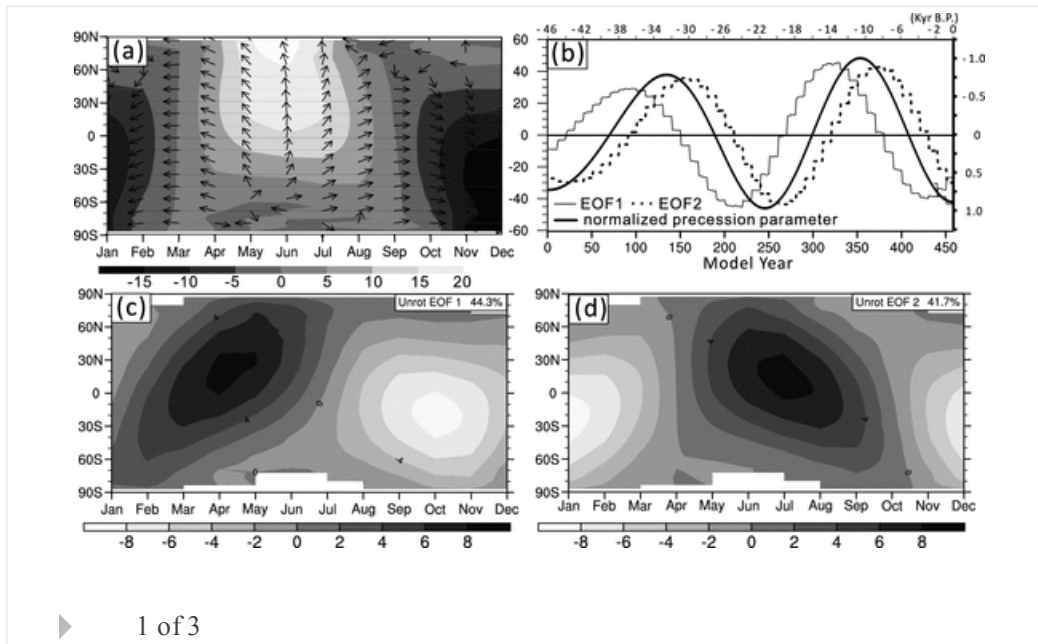
▶ 1 of 2

Extratropical modulation on Asian summer monsoon at precessional bands

Yue Wang, ZhiMin Jian, Ping Zhao

KEY POINTS

- Precession increases thermal contrast between Eurasia and Pacific
- There is a stronger Asian summer monsoon
- This response is explained by Asian-Pacific Oscillation



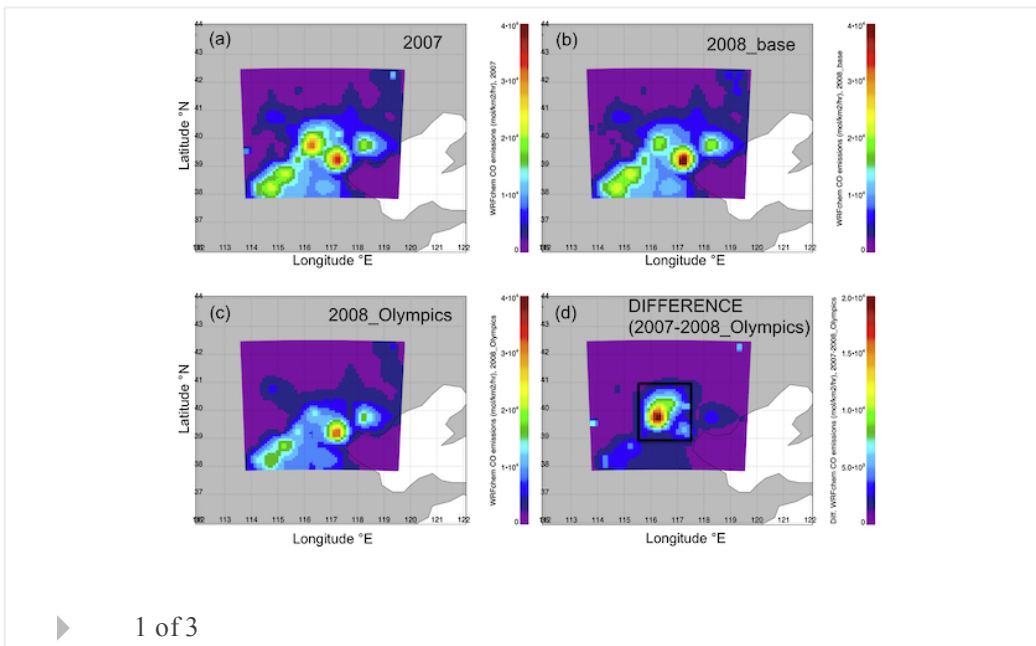
Satellite-based estimates of reduced CO and CO₂ emissions due to traffic restrictions during the 2008 Beijing Olympics

Helen M. Worden, Yafang Cheng, Gabriele Pfister, Gregory R. Carmichael, Qiang Zhang, David G. Streets, Merritt Deeter, David P. Edwards, John C. Gille, John R. Worden

First Published: 20 July 2012 Vol: 39, L14802 | DOI: 10.1029/2012GL052395

KEY POINTS

- Significant reduction in CO₂ emissions from Beijing Olympics traffic controls
- Use of satellite observations with regional modeling for source attribution
- Urban traffic restrictions could help attain global CO₂ reduction targets



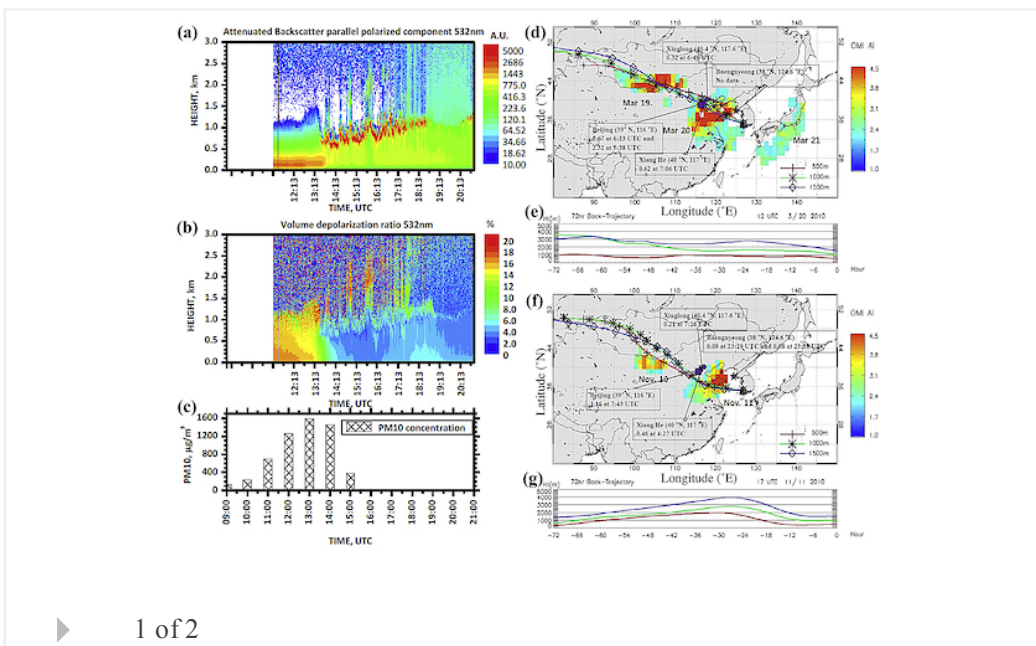
Record heavy mineral dust outbreaks over Korea in 2010: Two cases observed with multiwavelength aerosol/depolarization/Raman-quartz lidar

B. Tatarov, D. Müller, Y.-M. Noh, K.-H. Lee, D.-H. Shin, S.-K. Shin, N. Sugimoto, P. Seifert, Y.-J. Kim

First Published: 17 July 2012 Vol: 39, L14801 | DOI: 10.1029/2012GL051972

KEY POINTS

- Mineral dust measurements at ground do not represent the vertical column
- The March dust storm was probably the strongest event ever recorded over Korea
- Similarly strong dust concentrations may also occur outside the main dust season



Climate

The shifting probability distribution of global daytime and night-time temperatures

Markus G. Donat, Lisa V. Alexander

First Published: 31 July 2012 Vol: 39, L14707 | DOI: 10.1029/2012GL052459

KEY POINTS

- Recent observed warming is investigated using global PDFs
- PDFs systematically shift and skew towards the hotter part of the distribution
- In most regions extreme temperatures increased more than mean temperatures

[Highlight](#)

Regional assessment of the parameter-dependent performance of CAM4 in simulating tropical clouds

Yuying Zhang, Shaocheng Xie, Curt Covey, Donald D. Lucas, Peter Gleckler, Stephen A. Klein, John Tannahill, Charles Doutriaux, Richard Klein

First Published: 31 July 2012 Vol: 39, L14708 | DOI: 10.1029/2012GL052184

KEY POINTS

- Regional model performance is quite sensitive to parameter values
- Non-linearities and interactions among parameters are important
- The model has difficulty capturing high clouds over tropical land

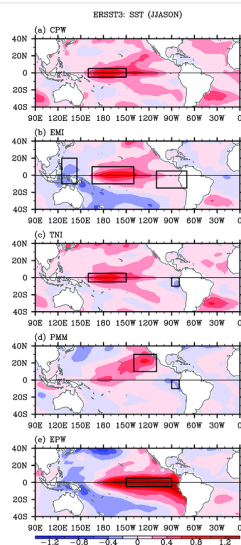
Impacts of non-canonical El Niño patterns on Atlantic hurricane activity

Sarah Larson, Sang-Ki Lee, Chunzai Wang, Eui-Seok Chung, David Enfield

First Published: 28 July 2012 Vol: 39, L14706 | DOI: 10.1029/2012GL052595

KEY POINTS

- Impact of non-canonical El Ninos on Atlantic TC activity is explored
- Non-canonical El Ninos are too weak to cause teleconnection to the Atlantic
- Non-canonical El Ninos have insubstantial impact on Atlantic TC activity



▶ 1 of 3

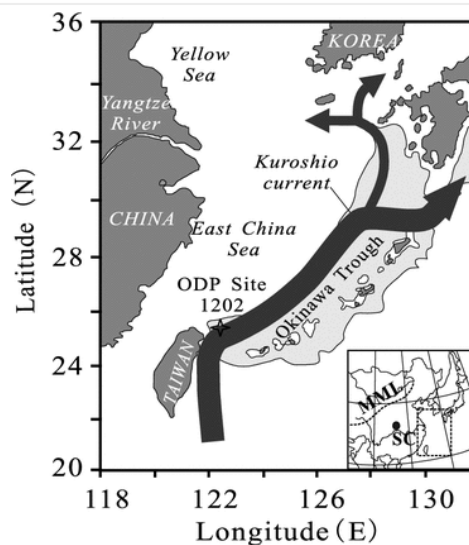
Sea surface temperature variability in southern Okinawa Trough during last 2700 years

Weichao Wu, Wenbing Tan, Liping Zhou, Huan Yang, Yunping Xu

First Published: 26 July 2012 Vol: 39, L14705 | DOI: 10.1029/2012GL052749

KEY POINTS

- The 20th century warming in SOT is still within variability of late Holocene
- A strong coupling of KC, EAM and ENSO exists in late Holocene
- MWP has a mean SST lower than RWP and STWP in Okinawa Trough



▶ 1 of 3

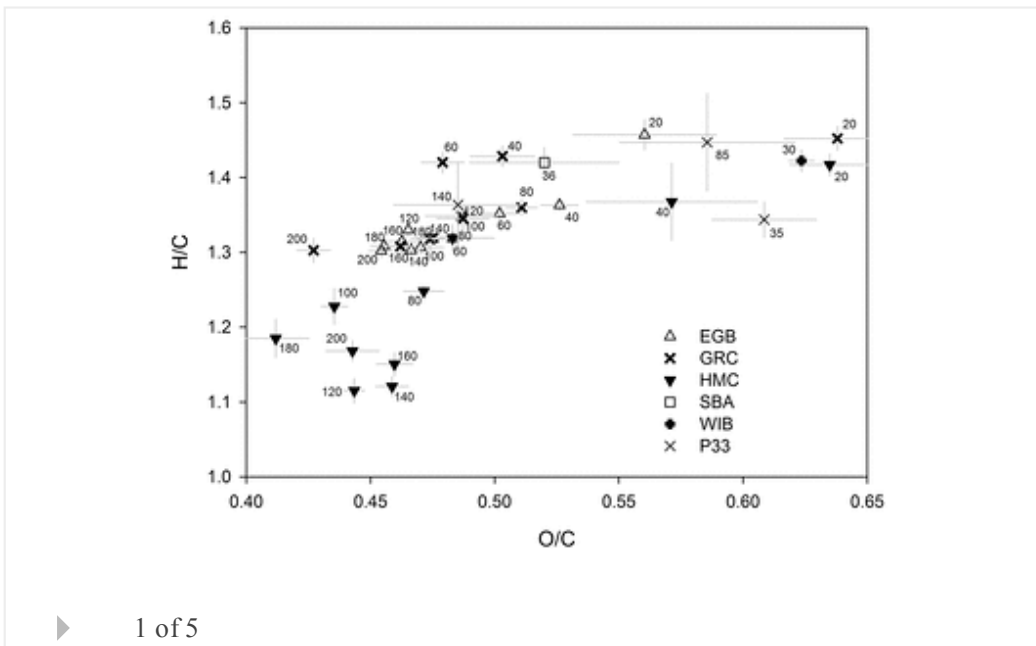
Sensitivity of peatland carbon loss to organic matter quality

Jens Leifeld, Markus Steffens, Angela Galego-Sala

First Published: 24 July 2012 Vol: 39, L14704 | DOI: 10.1029/2012GL051856

KEY POINTS

- Organic matter quality varies with peat depth
- Ecosystem disturbance exposes different qualities that induce different CO₂ rates
- Quality can be measured



Punctuated global tropical cyclone activity over the past 5,000 years

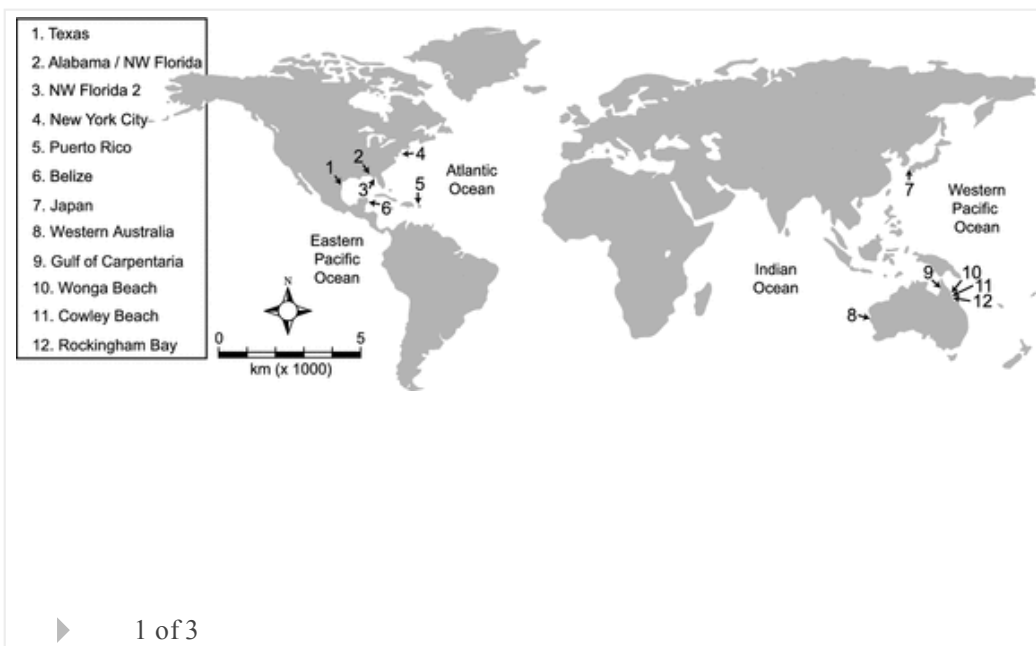
Jonathan Nott, Anthony Forsyth

First Published: 24 July 2012 Vol: 39, L14703 | DOI: 10.1029/2012GL052236

KEY POINTS

- Long-term global cyclone activity is not random
- Long-term cyclone activity is punctuated by episodes of varying intensity
- These alternating episodes are centennial to millennial in length

Highlight

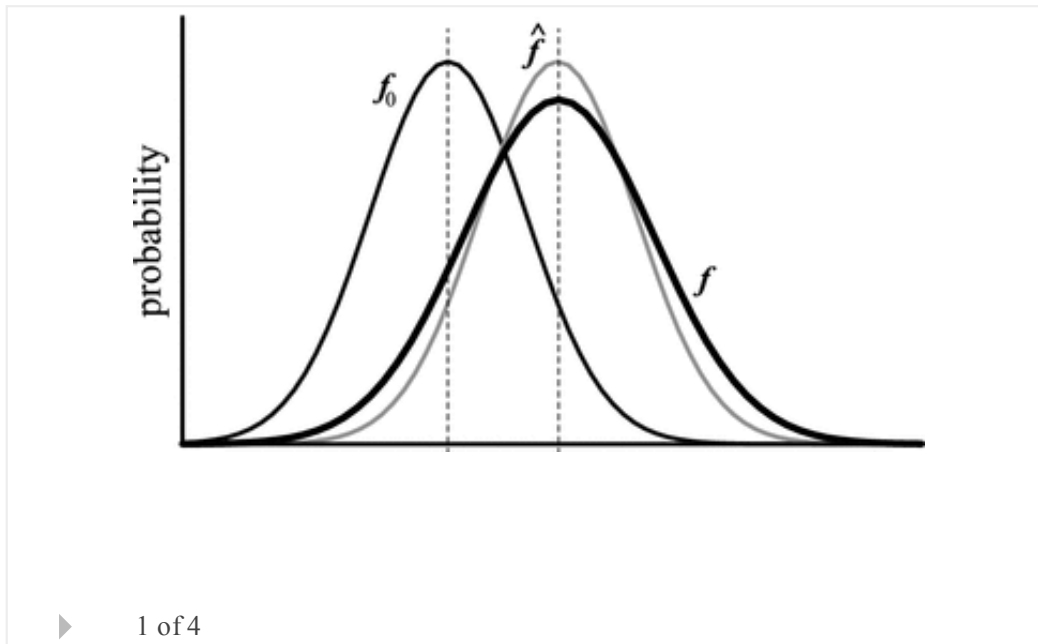


A method for disentangling El Niño–mean state interaction

Masahiro Watanabe, Andrew T. Wittenberg

KEY POINTS

- We proposed a new statistical method for evaluating ENSO-mean precip coupling
- The method works well when applied to two different sets of the GCM ensemble
- The method is simple and can be used for the other aspects of the CMIP5 models

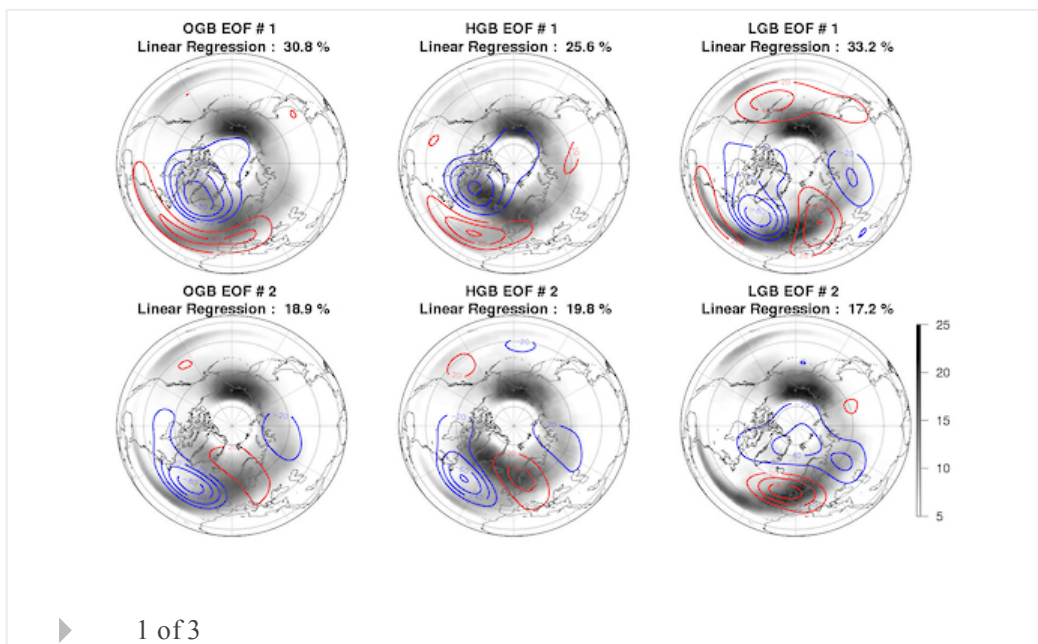
**Coupling between Greenland blocking and the North Atlantic Oscillation pattern**

P. Davini, C. Cagnazzo, R. Neale, J. Tribbia

First Published: 21 July 2012 Vol: 39, L14701 | DOI: 10.1029/2012GL052315

KEY POINTS

- Variability of the NAO pattern and changes of Greenland blocking frequency



Hydrology and Land Surface Studies

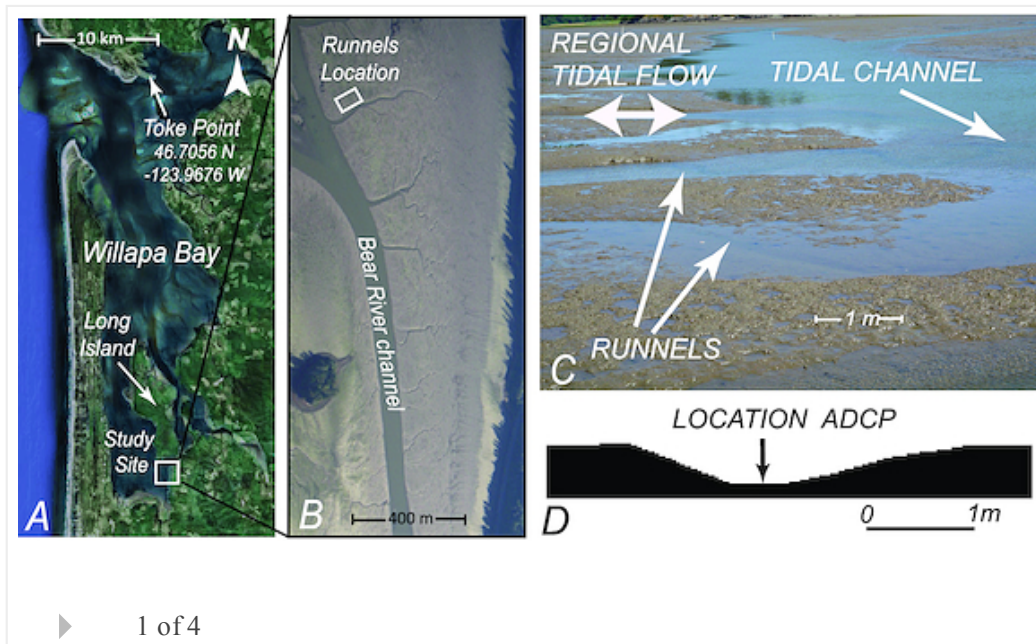
Mudflat runnels: Evidence and importance of very shallow flows in intertidal morphodynamics

S. Fagherazzi, G. Mariotti

First Published: 31 July 2012 Vol: 39, L14402 | DOI: 10.1029/2012GL052542

KEY POINTS

- Shallow flows in mudflat runnels are fast and rich in suspended sediments
- Shallow flows are potentially erosive, developing high bottom shear stresses
- Runnels in mudflats are drainage features conveying ebb flow



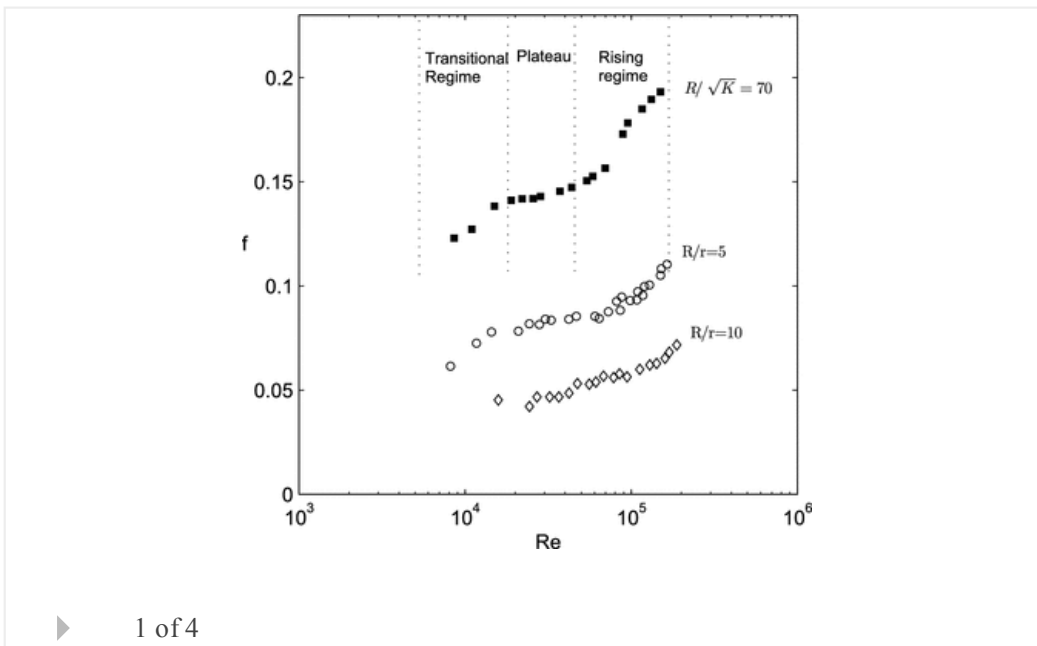
A phenomenological model to describe turbulent friction in permeable-wall flows

C. Manes, L. Ridolfi, G. Katul

First Published: 27 July 2012 Vol: 39, L14403 | DOI: 10.1029/2012GL052369

KEY POINTS

- Friction in flows over permeable walls displays an anomalous behavior
- A physically-based model which captures such anomalies is presented
- The model can be tuned and used in the future for geophysical applications



A 45-year time series of dune mobility indicating constant windiness over the central Sahara

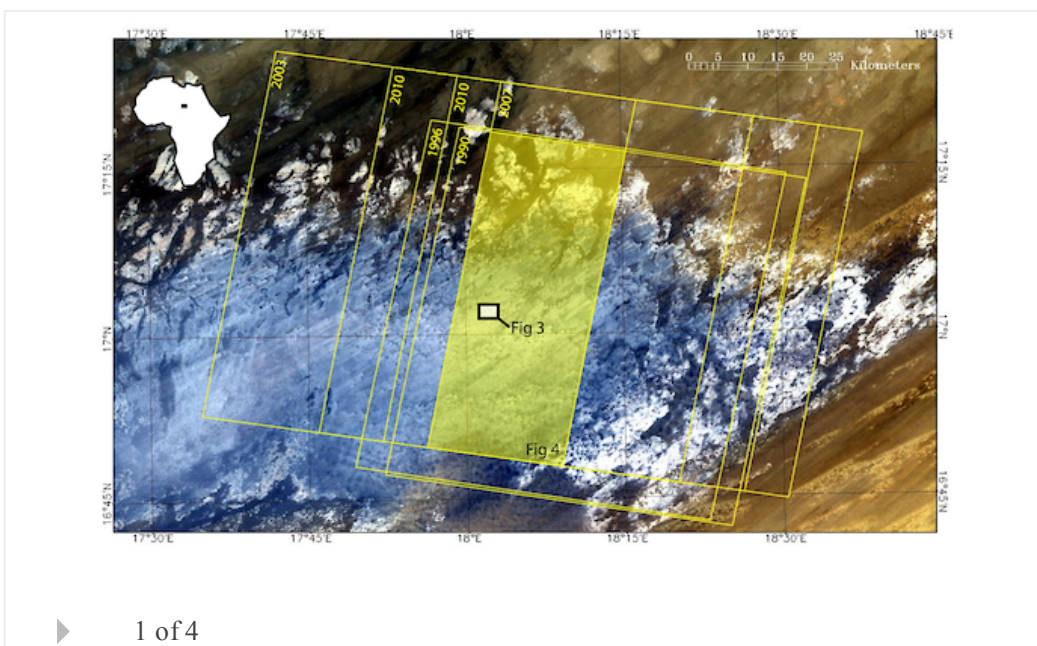
P. Vermeesch, S. Leprince

First Published: 19 July 2012 Vol: 39, L14401 | DOI: 10.1029/2012GL052592

KEY POINTS

- Dune velocity can be used as a windiness proxy
- Changes in dune velocity can be monitored by optical image correlation
- There has been no change in Saharan dune velocity over the past 45 years

Highlight



Oceans

Bringing physics to life at the submesoscale

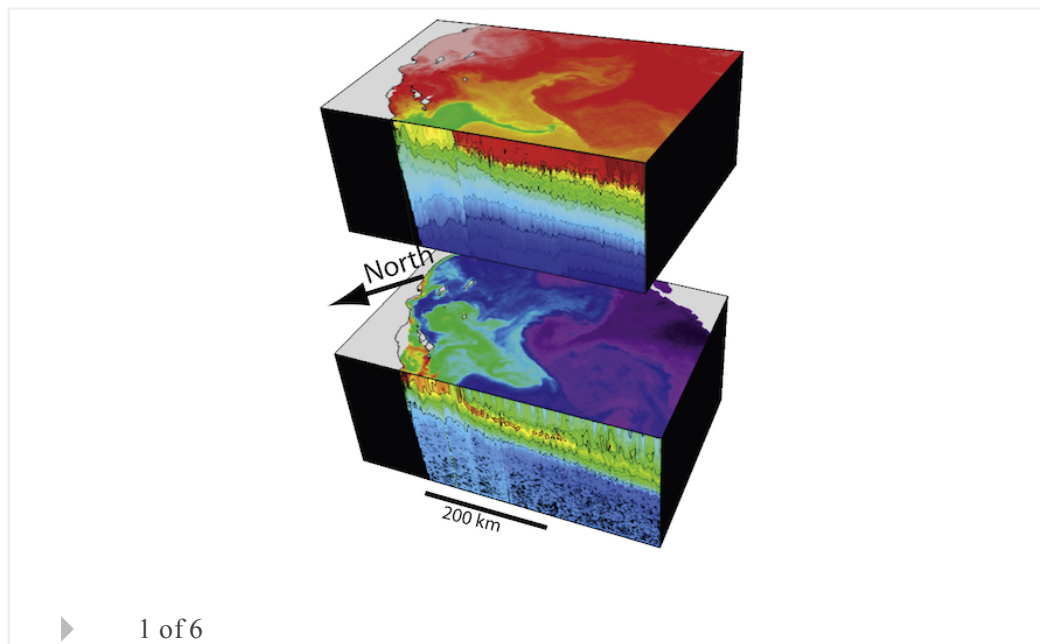
Marina Lévy, Raffaele Ferrari, Peter J. S. Franks, Adrian P. Martin, Pascal Rivière

First Published: 27 July 2012 Vol: 39, L14602 | DOI: 10.1029/2012GL052756

KEY POINTS

- Submesoscale physics control ecology locally, but also feedback to basin scales
- Strong gradients in community structure are created at the submesoscale
- Despite recent innovations, sampling the submesoscale remains a major challenge

Highlight



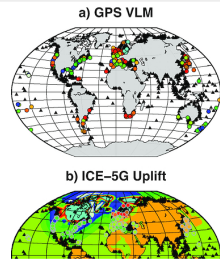
Regional biases in absolute sea-level estimates from tide gauge data due to residual unmodeled vertical land movement

Matt A. King, Maxim Keshin, Pippa L. Whitehouse, Ian D. Thomas, Glenn Milne, Riccardo E. M. Riva

First Published: 27 July 2012 Vol: 39, L14604 | DOI: 10.1029/2012GL052348

KEY POINTS

- Modeled GIA and observed GPS uplift rates near global tide gauges are compared
- Regionally coherent differences reach +/- 1-2 mm/yr
- Sea level studies using GIA models alone will be regionally biased



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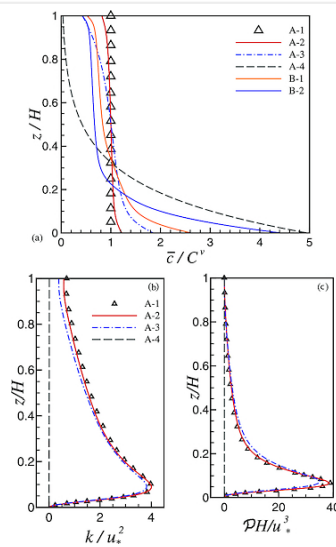
Towards a universal criteria for turbulence suppression in dilute turbidity currents with non-cohesive sediments

Mariano I. Cantero, Mrugesh Shringarpure, S. Balachandar

First Published: 27 July 2012 Vol: 39, L14603 | DOI: 10.1029/2012GL052514

KEY POINTS

- Turbulence extinction by suspended sediments
- Analysis of critical parameter regulating turbulence extinction
- Scaling of critical parameter with Reynolds number



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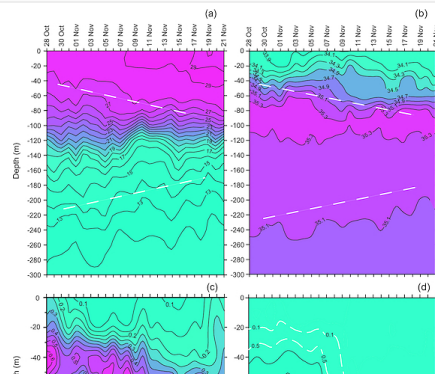
Bio-physical coupling and ocean dynamics in the central equatorial Indian Ocean during 2006 Indian Ocean Dipole

S. Prasanna Kumar, T. Divya David, P. Byju, J. Narvekar, Kunio Yoneyama, Naoki Nakatani, Akio Ishida, Takanori Horii, Yukio Masumoto, Keisuke Mizuno

First Published: 24 July 2012 Vol: 39, L14601 | DOI: 10.1029/2012GL052609

KEY POINTS

- Reports hitherto unexplored bio-physical coupling by Yanai wave at EIO
- Proposed a new mechanism to explain observed deepening of the upper ocean
- High-resolution physical and biogeochemical data in the EIO is nonexistent



▶ 1 of 3

Planets

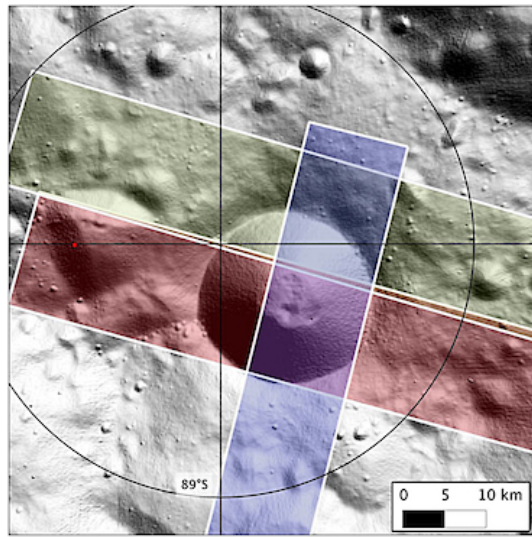
An upper limit for ice in Shackleton crater as revealed by LRO Mini-RF orbital radar

B. J. Thomson, D. B. J. Bussey, C. D. Neish, J. T. S. Cahill, E. Heggy, R. L. Kirk, G. W. Patterson, R. K. Raney, P. D. Spudis, T. W. Thompson, et al

First Published: 28 July 2012 Vol: 39, L14201 | DOI: 10.1029/2012GL052119

KEY POINTS

- An upper bound on the amount of ice in this crater is ~5 wt%
- Radar data has been obtained for all of Shackleton, a first
- No evidence for thick, meters-thick ice is found



▶ 1 of 2

Solid Earth

Frequency dependence of mud volcano response to earthquakes

Maxwell L. Rudolph, Michael Manga

First Published: 31 July 2012 Vol: 39, L14303 | DOI: 10.1029/2012GL052383

KEY POINTS

- Mud volcanoes sometimes respond to earthquakes
- In addition to dissipated energy, the frequency of shaking affects response
- Triggering occurs by mechanisms that depend on frequency

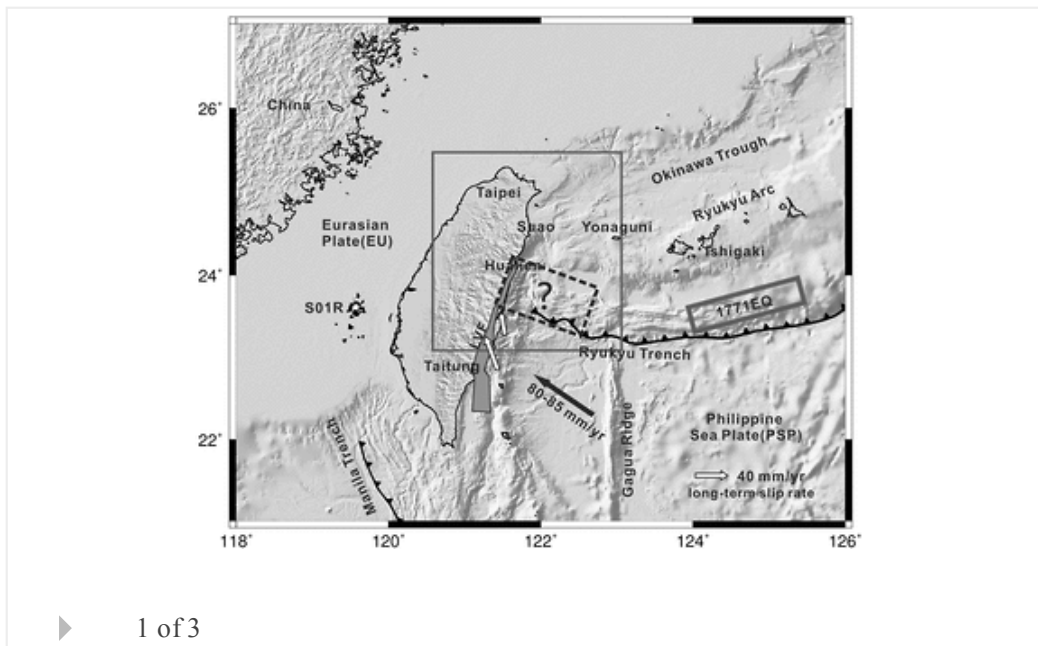
The potential for a great earthquake along the southernmost Ryukyu subduction zone

Ya-Ju Hsu, Masataka Ando, Shui-Beih Yu, Mark Simons

First Published: 26 July 2012 Vol: 39, L14302 | DOI: 10.1029/2012GL052764

KEY POINTS

- The shallow portion of southernmost Ryukyu subduction zone is fully locked
- The potential threat from ~Mw 8 tsunami earthquakes cannot be ignored
- The region with active back-arc rifting is capable of producing large events



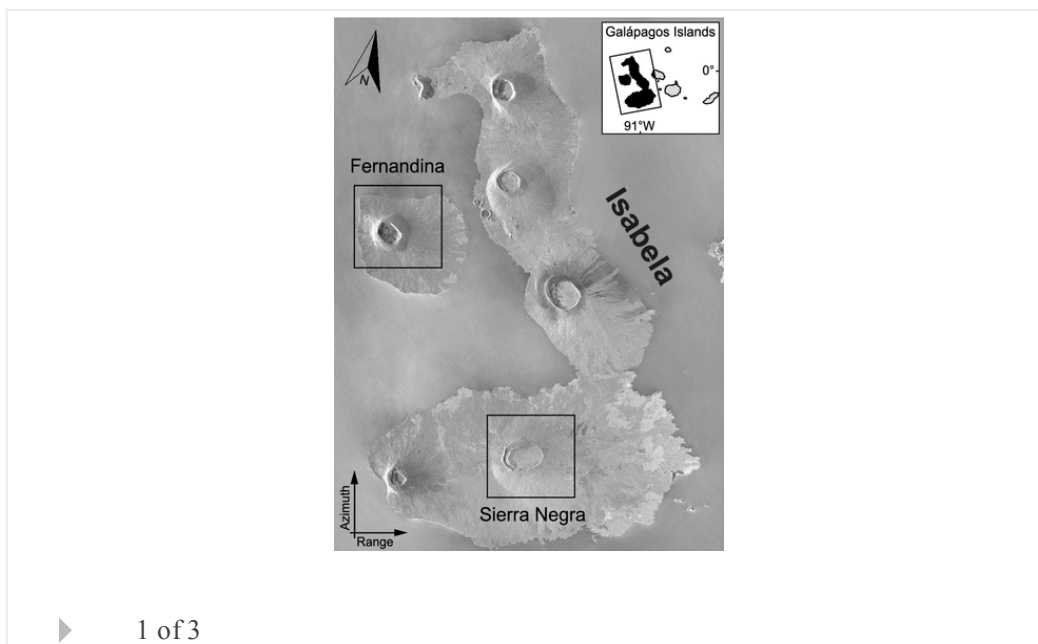
Joint analysis of displacement time series retrieved from SAR phase and amplitude: Impact on the estimation of volcanic source parameters

Andrea Manconi, Francesco Casu

First Published: 21 July 2012 Vol: 39, L14301 | DOI: 10.1029/2012GL052202

KEY POINTS

- Joint analysis of SAR phase and amplitude time series
- Estimation of volcanic source volume changes
- Better evaluation of large deformation phenomena



Space Sciences

First daytime thermospheric wind observation from a balloon-borne Fabry-Perot

interferometer over Kiruna (68N)

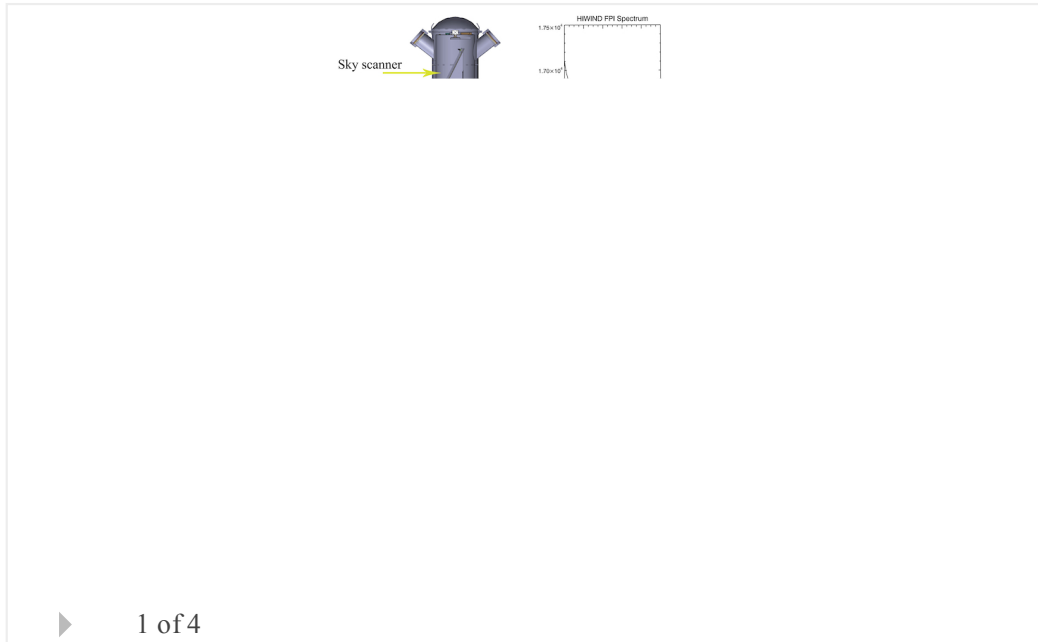
Qian Wu, W. Wang, R. G. Roble, Ingemar Häggström, Anja Strømme

First Published: 31 July 2012 Vol: 39, L14104 | DOI: 10.1029/2012GL052533

KEY POINTS

- HIWIND observed persistent equatorward winds which different from model results
- HIWIND and EISCAT observations yielded a smaller Burnside factor value of 0.85
- Strong vertical winds might cause large differences between the FPI and radar de

Highlight



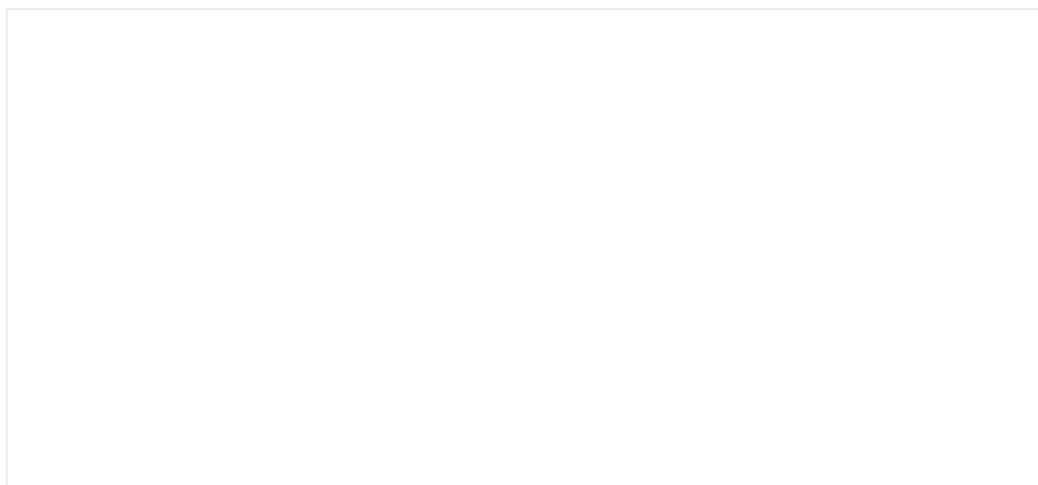
Disappearance of equatorial plasma bubble after interaction with mid-latitude medium-scale traveling ionospheric disturbance

Y. Otsuka, K. Shiokawa, T. Ogawa

First Published: 28 July 2012 Vol: 39, L14105 | DOI: 10.1029/2012GL052286

KEY POINTS

- Medium-scale traveling ionospheric disturbance
- Equatorial plasma bubble
- Airglow imaging



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Modulation of plasmaspheric hiss intensity by thermal plasma density structure

Lunjin Chen, Richard M. Thorne, Wen Li, Jacob Bortnik, Drew Turner, Vassilis Angelopoulos

First Published: 25 July 2012 Vol: 39, L14103 | DOI: 10.1029/2012GL052308

KEY POINTS

- Hiss emission intensity is strongly modulated by plasma density variations
- Observed modulation is caused by local cyclotron amplification and ray focusing
- Wave guidance in density crests leads to field-aligned propagating waves

Highlight

▶ 1 of 4

Perpendicular propagation of magnetosonic waves

Lunjin Chen, Richard M. Thorne

First Published: 20 July 2012 Vol: 39, L14102 | DOI: 10.1029/2012GL052485

KEY POINTS

- MS waves can be trapped near the plasmopause and trapping condition is given
- The radial range of MS wave propagation is determined
- Those untrapped MS waves can propagate azimuthally up to ~ 7 hr local times

▶ 1 of 4

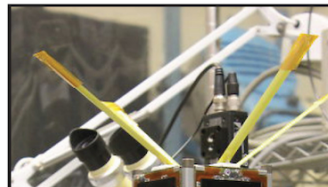
First measurements of radar coherent scatter by the Radio Aurora Explorer CubeSat

H. Bahcivan, J. W. Cutler, M. Bennett, B. Kempke, J. C. Springmann, J. Buonocore, M. Nicolls, R. Doe

First Published: 18 July 2012 Vol: 39, L14101 | DOI: 10.1029/2012GL052249

KEY POINTS

- RAX successful detects coherent scatter
- RAX resolves FAI in altitude and aspect angle
- First coherent scatter measurements by a nanosatellite

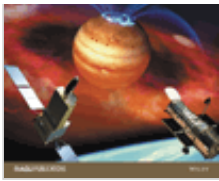


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