

Boulder Atmospheric Observatory AGU 20110307

[Measurements of Concentrations and Dry Surface Fluxes of Atmospheric Nitrates in the Presence of Ammonia](#) [\[Preview\]](#)

B. Huebert, W. Luke, A. Delany, and R. Brost

J. Geophys. Res., 93, D6, doi:10.1029/JD093iD06p07127, 1988

We measured vertical gradients of nitric acid vapor and nitrate aerosol near the Boulder Atmospheric Observatory (BAO) tower, 20 km north of Denver, Colorado. The site was usually downwind ...

[Validation of a UHF spaced antenna wind profiler for high-resolution boundary layer observations](#) [\[Preview\]](#)

S. Cohn, C. Holloway, S. Oncley, R. Doviak, and R. Lataitis

Radio Sci., 32, 3, doi:10.1029/97RS00578, 1997

In this paper we apply a spaced antenna technique derived from the recent work of Doviak et al. [1996a] and Holloway et al. [this issue] to wind measurement with a small UHF boundary la...

[Absorption of solar radiation by clouds: Interpretations of satellite, surface, and aircraft measurements](#) [\[Preview\]](#)

R. Cess, M. Zhang, Y. Zhou, X. Jing, and V. Dvortsov

J. Geophys. Res., 101, D18, doi:10.1029/96JD02156, 1996

To investigate the absorption of shortwave radiation by clouds, we have collocated satellite and surface measurements of shortwave radiation at several locations. Considerable effort has be...

[Meteorological Associations With Aerosol Composition in the Boundary Layer](#) [\[Preview\]](#)

P. Guest, W. Mach, and J. Winchester

J. Geophys. Res., 89, D1, doi:10.1029/JD089iD01p01459, 1984

The associations of meteorological parameters with aerosol elemental concentrations in the boundary layer have been studied with measurements obtained at the Boulder Atmospheric Observatory...

[Threshold Friction Velocities for Dust Production for Agricultural Soils](#) [\[Preview\]](#)

D. Gillette

J. Geophys. Res., 93, D10, doi:10.1029/JD093iD10p12645, 1988

Threshold velocities for agricultural soils were measured for a wide variety of conditions in order to quantify a model of dust emissions for the United States. These measurements supplement...

[Sea-air and boundary layer temperatures measured by a scanning 5-mm-wavelength radiometer: Recent results](#) [\[Preview\]](#)

E. Westwater, Y. Han, V. Irisov, V. Leuskiy, Y. Trokhimovski, C. Fairall, and A. Jessup

Radio Sci., 33, 2, doi:10.1029/97RS02747, 1998

A scanning 5-mm-wavelength (60 GHz) radiometer was deployed during two recent experiments. The first was in September-October in 1995 when the Environmental Technology Laboratory conducted ...

[Three-dimensional wind measurements in the optically clear planetary boundary layer with dual-Doppler radar](#) [\[Preview\]](#)

R. Kropfli and P. Hildebrand

Radio Sci., 15, 2, doi:10.1029/RS015i002p00283, 1980

Radar-derived three-dimensional wind fields were obtained near the Boulder Atmospheric Observatory tower during a planetary boundary layer (PBL) experiment called Phoenix in September 1978....

[Measurements of H₂O₂ and HNO₃ in rural air](#) [\[Preview\]](#)

T. J. Kelly, D. H. Stedman, and G. L. Kok

Geophys. Res. Lett., 6, 5, doi:10.1029/GL006i005p00375, 1979

In a preliminary study of two new analytical techniques, we have measured hydrogen peroxide (H₂O₂) and nitric acid (HNO₃) near ground level at a rural site near Boulder, Colorado dur...

[Review of atmospheric boundary layer research, 1983–1986](#) [\[Preview\]](#)

C. A. Friehe

Rev. Geophys., 25, 3, doi:10.1029/RG025i003p00387, 1987

The atmospheric boundary layer comprises the lower portion of the atmosphere that is dynamically or thermodynamically affected by the presence of and interactions with the underlying surfa...

[Atmospheric boundary layers](#) [\[Preview\]](#)

L. Mahrt

Rev. Geophys., 21, 5, doi:10.1029/RG021i005p01042, 1983

[Systematic Variations in the Concentration of NO_x \(NO Plus NO₂\) at Niwot Ridge, Colorado](#) [\[Preview\]](#)

D. Parrish, et al.

J. Geophys. Res., 95, D2, doi:10.1029/JD095iD02p01817, 1990

Measurements of the concentrations of NO and NO₂ were made in the rural troposphere during a year's period in 1980–1981, during the summers of 1983, 1984, and 1987, and during the fall of...

[Measurements and parameterizations of small aerosol deposition velocities to grassland, arable crops, and forest: Influence of surface roughness length on deposition](#) [Preview]

M. W. Gallagher, E. Nemitz, J. R. Dorsey, D. Fowler, M. A. Sutton, M. Flynn, and J. Duyzer

J. Geophys. Res., 107, D12, doi:10.1029/2001JD000817, 2002

New micrometeorological measurements of small (0.1–0.2 μm diameter) aerosol particle fluxes using the eddy correlation technique are presented for moorland and also for grassland vegetation, the latte...

[Long-term variations in the occurrence and effective solar transmission of clouds as determined from surface-based total irradiance observations](#) [Preview]

E. G. Dutton, A. Farhadi, R. S. Stone, C. N. Long, and D. W. Nelson

J. Geophys. Res., 109, D03204, doi:10.1029/2003JD003568, 2004

Time series of cloud solar transmission and cloud occurrence frequency are developed for the past 27 years at four globally remote and climatically diverse surface locations. A new methodology is de...

[Advances in meteorological instrumentation](#) [Preview]

R. J. Serafin, W. F. Dabberdt, and W. A. Cooper

Rev. Geophys., 25, 3, doi:10.1029/RG025i003p00393, 1987

Current work on meteorological instrumentation and observing systems is summarized. In situ sensing, aircraft instrumentation, remote sensing systems, and tropospheric sounding technique...

[Mesoscale and severe storm meteorology](#) [Preview]

R. A. Maddox

Rev. Geophys., 25, 3, doi:10.1029/RG025i003p00329, 1987

The past four years have witnessed substantial research on mesoscale and severe thunderstorm phenomena. The reasons for rapidly expanding activities in both areas are quite clear. Severe t...

[Size-resolved fluxes of sub-100-nm particles over forests](#) [\[Preview\]](#)

S. C. Pryor, R. J. Barthelmie, A. M. Spaulding, S. E. Larsen, and A. Petroff

J. Geophys. Res., 114, D18212, doi:10.1029/2009JD012248, 2009

Dry deposition of atmospheric particles is critically dependent on particle size and plays a key role in dictating the mass and number distributions of atmospheric particles. However, modeling dry d...

[Cross correlations of fields scattered by horizontally anisotropic refractive index irregularities](#) [\[Preview\]](#)

C. Holloway, R. Doviak, and S. Cohn

Radio Sci., 32, 5, doi:10.1029/97RS00715, 1997

In this paper we present an analytic expression for the cross-correlation function of signals received by spaced antennas for scattering from an atmosphere with horizontally and/or vertical...

[Assessing ocean buoy shortwave observations using clear-sky model calculations](#) [\[Preview\]](#)

M Medovaya, D. E. Waliser, R. A. Weller, and M. J. McPhaden

J. Geophys. Res., 107, C2, doi:10.1029/2000JC000558, 2002

Comparison of ocean buoy observations and model calculations of incoming clear-sky surface shortwave radiation is performed in order to assess the buoys' general reliability under operating conditions...

[Stable isotope ratios in atmospheric CH₄: Implications for seasonal sources and sinks](#) [Preview]

S. C. Tyler, A. L. Rice, and H. O. Ajie

J. Geophys. Res., 112, D03303, doi:10.1029/2006JD007231, 2007

We report δD and $\delta^{13}C$ measurements of atmospheric CH₄ from air samples collected from two locations in the United States. They are the mid continental site Niwot Ridge, Colorado (40°N, 105°W)...

[A top-down analysis of emissions from selected Texas power plants during TexAQS 2000 and 2006](#) [Preview]

J. Peischl, et al.

J. Geophys. Res., 115, D16303, doi:10.1029/2009JD013527, 2010

[Direct measurement of the production rate of ¹⁴C near Earth's surface](#) [Preview]

J. E. Mak, C. A. M. Brenninkmeijer, and J. R. Southon

Geophys. Res. Lett., 26, 22, doi:10.1029/1999GL010791, 1999

Environmental ¹⁴C is well known for its application in carbon dating organic material, as well as its use as a geochemical tracer in the oceans and atmosphere. More recently, ¹⁴C in th...

[Determination of temporal and spatial characteristics of atmospheric gravity waves combining cross-spectral analysis and wavelet transformation](#) [Preview]

C. Lu, S. Koch, and N. Wang

J. Geophys. Res., 110, D01109, doi:10.1029/2004JD004906, 2005

In combining cross-spectral analysis and wavelet transformation we demonstrate how temporal and spatial characteristics of atmospheric gravity waves can be extracted from observed winds and potentia...

[Cloud radiative forcing on surface shortwave fluxes: A case study based on Cloud Lidar and Radar Exploratory Test](#) [\[Preview\]](#)

L. Shi

J. Geophys. Res., 99, D12, doi:10.1029/94JD01952, 1994

Shortwave downward fluxes for selected stratus, cirrus, and mixed phase cloud cases are analyzed based on cloud and surface radiation measurements from the Cloud Lidar and Radar Exploratory...

[Turbulent Transport Observed Just Above the Amazon Forest](#) [\[Preview\]](#)

D. Fitzjarrald, B. Stormwind, G. Fisch, and O. Cabral

J. Geophys. Res., 93, D2, doi:10.1029/JD093iD02p01551, 1988

We present observations of turbulent heat, moisture, and momentum transport made at two levels, approximately 5 and 10 m above the Amazon rain forest canopy. Data acquired at 10 Hz included...

[Interpretation of Ground-Based Radiometric Observations in Terms of a Gravity Wave Model](#) [\[Preview\]](#)

F. Canavero, F. Einaudi, E. Westwater, M. Falls, J. Schroeder, and A. Bedard

J. Geophys. Res., 95, D6, doi:10.1029/JD095iD06p07637, 1990

An analysis is presented of 2-hour and 4-hour segments of data taken at Denver, Colorado, on February 3, 1984, by a ground-based radiometer designed and operated by the Wave Propagation Lab...

[Cross-correlation ratio method to estimate cross-beam wind and comparison with a full correlation analysis](#) [\[Preview\]](#)

G. Zhang, R. J. Doviak, J. Vivekanandan, W. O. J. Brown, and S. A. Cohn

Radio Sci., 38, 8052, doi:10.1029/2002RS002682, 2003

Cross-beam wind is usually estimated using a full correlation analysis (FCA) method applied to signals from spaced antennas. In this paper we present a cross-correlation ratio (CCR) method for wind ...

[Numerical Modeling of Concentrations and Fluxes of HNO₃, NH₃, and NH₄NO₃ Near the Surface](#) [\[Preview\]](#)

R. Brost, A. Delany, and B. Huebert

J. Geophys. Res., 93, D6, doi:10.1029/JD093iD06p07137, 1988

Huebert et al . [this issue] observed anomalous vertical profiles of nitric acid vapor and nitrate aerosol near the Earth's surface. The average deposition velocity of nitrate...

[An observational study of turbulence inside a closed basin](#) [\[Preview\]](#)

P. Fu, S. Zhong, C. D. Whiteman, T. Horst, and X. Bian

J. Geophys. Res., 115, D23106, doi:10.1029/2010JD014345, 2010

Data from a flux tower on the floor of Arizona's Meteor Crater are compared to data on the plain outside the crater to determine the impact of basin topography on surface-layer mean and turbulence p...

[Interpretation of VHF ST radar vertical echoes from in situ temperature sheet observations](#) [\[Preview\]](#)

H. Luce, M. Crochet, F. Dalaudier, and C. Sidi

Radio Sci., 30, 4, doi:10.1029/95RS00713, 1995

The interpretation of the radar aspect sensitivity observed at VHF frequencies in the lower atmosphere is still a subject of controversy in the radar community. Indeed, scattering from anis...

[The compatibility between aircraft and ground-based air quality measurements](#) [\[Preview\]](#)

C. Van Valin, J. Boatman, M. Luria, V. Aneja, D. Blake, M. Rodgers, and J. Sigmon

J. Geophys. Res., 99, D1, doi:10.1029/93JD02679, 1994

[A new frequency-modulated continuous wave radar for studying planetary boundary layer morphology](#) [\[Preview\]](#)

F. Eaton, S. McLaughlin, and J. Hines

Radio Sci., 30, 1, doi:10.1029/94RS01937, 1995

This paper describes a new generation frequency-modulated continuous wave (FMCW) radar using state-of-the-art electronics and computerized data processing that greatly enhance the use of th...

[Effects of absorbing aerosols on the determination of the surface solar radiation](#) [\[Preview\]](#)

J. Feng and H. G. Leighton

J. Geophys. Res., 108, 4227, doi:10.1029/2002JD002852, 2003

Coincident and collocated measurements of solar radiation from the Scanner for Radiation Budget (ScaRaB) on Meteor-3 and from towers in a boreal forest region during the Boreal Ecosystems and Atmosp...

[AIRBORNE SAMPLING OF SELECTED TRACE CHEMICALS ABOVE THE CENTRAL UNITED STATES](#) [\[Preview\]](#)

J. Boatman, D. Wellman, C. Van Valin, R. Gunter, J. Ray, H. Sievering, Y. Kim, S. Wilkison, and M. Luria

J. Geophys. Res., 94, D4, doi:10.1029/JD094iD04p05081, 1989

Field observations during a series of 24 atmospheric sampling flights in winter, spring, summer, and fall of 1987 provided a preliminary climatology of selected trace chemicals above the ce...

[Characterization and dry deposition of carbonaceous aerosols in a wet tropical forest canopy](#) [\[Preview\]](#)

H. W. Loescher, J. A. Bentz, S. F. Oberbauer, T. K. Ghosh, R. V. Tompson, and S. K. Loyalka

J. Geophys. Res., 109, D02309, doi:10.1029/2002JD003353, 2004

Carbon aerosol concentration was measured using an impactor on a 42 m tower over a wet tropical forest in northeast Costa Rica. Samples were collected at three different heights, 42, 21, and 2 m, fo...

[Emissions of Alkaline Elements Calcium, Magnesium, Potassium, and Sodium From Open Sources in the Contiguous United States](#) [\[Preview\]](#)

D. Gillette, G. Stensland, A. Williams, W. Barnard, D. Gatz, P. Sinclair, and T. Johnson

Global Biogeochem. Cycles, 6, 4, doi:10.1029/91GB02965, 1992

Models of dust emissions by wind erosion (including winds associated with regional activity as well as dust devils) and vehicular disturbances of unpaved roads were developed, calib...

[Disjunct eddy covariance technique for trace gas flux measurements](#) [\[Preview\]](#)

H. J. I. Rinne, A. B. Guenther, C. Warneke, J. A. de Gouw, and S. L. Luxembourg

Geophys. Res. Lett., 28, 16, doi:10.1029/2001GL012900, 2001

A new approach for eddy covariance flux measurements is developed and applied for trace gas fluxes in the atmospheric surface layer. In disjunct eddy covariance technique, quick samples wi...

[Eddy Correlation Measurements of Atmospheric Fluxes of Ozone, Sulphur, and Particulates During the Champaign Intercomparison Study](#) [Preview]

H. Neumann and G. Den Hartog

J. Geophys. Res., 90, D1, doi:10.1029/JD090iD01p02097, 1985

Atmospheric fluxes of momentum, sensible heat, water vapor, ozone, and sulphur were measured on 10 days during the intercomparison study. Computed mean daytime (average $z/L = -0.33$) dep...

[In-Flight Intercomparisons of Some Aircraft Meteorological and Chemical Measurement Techniques](#) [Preview]

J. Boatman, D. Wellman, R. Schnell, K. Business, M. Luria, and C. Van Valin

Global Biogeochem. Cycles, 2, 1, doi:10.1029/GB002i001p00001, 1988

A Beechcraft King Air and a Lockheed WP-3D (P-3) Orion aircraft were flown side by side on January 8, 1986 near Boston, Massachusetts, to compare the scientific measurements being m...

[Evaluation of Multiangle Imaging Spectroradiometer cloud motion vectors using NOAA radar wind profiler data](#) [Preview]

L. M. Hinkelman, R. T. Marchand, and T. P. Ackerman

J. Geophys. Res., 114, D21207, doi:10.1029/2008JD011107, 2009

Cloud motion vectors obtained stereoscopically by the Multiangle Imaging Spectroradiometer (MISR) are evaluated. The reference data for this assessment is taken from 23 sites in NOAA's radar wind pr...

[Air motion intercomparison flights during Transport and Chemical Evolution in the Pacific \(TRACE-P\)/ACE-ASIA](#) [Preview]

K. L. Thornhill, B. E. Anderson, J. D. W. Barrick, D. R. Bagwell, R. Friesen, and D. H. Lenschow

J. Geophys. Res., 108, 9001, doi:10.1029/2002JD003108, 2003

[Absorption of solar radiation by the cloudy atmosphere: Interpretations of collocated aircraft measurements](#) [\[Preview\]](#)

F. Valero, R. Cess, M. Zhang, S. Pope, A. Bucholtz, B. Bush, and J. Vitko

J. Geophys. Res., 102, D25, doi:10.1029/97JD01782, 1997