NOVEDADES BIBLIOGRÁFICAS

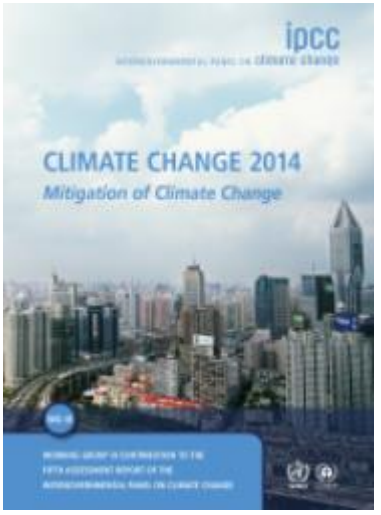
BIBLIOTECA DEL SENAMHI

BOLETÍN N° 8
Diciembre 2019 - C

ÍNDICE

PERÚ Ministerio del Ambiente

Libros



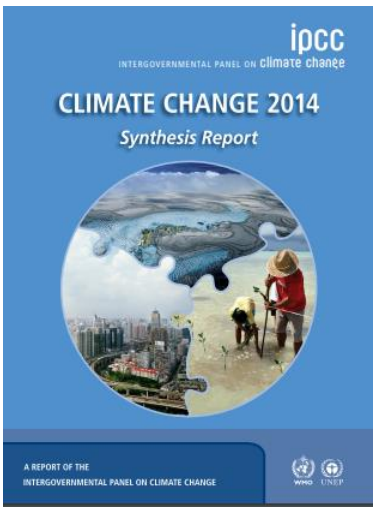
Climate Change 2014: mitigation of climate change : working group III contribution to the fifth assessment report of the Intergovernmental panel on climate change

Organización meteorológica mundial – OMM: SUIZA, 2014. 141 Pág.

Texto en inglés

Resumen:
The Working Group III contribution to the Fifth Assessment Report (AR5) of the Intergovernmental Panel on Climate Change (IPCC) provides a comprehensive and transparent assessment of the scientific literature on climate change mitigation. It builds upon the Working Group III contribution to the IPCC's Fourth Assessment Report (AR4) in 2007, the Special Report on Renewable Energy Sources and Climate Change Mitigation (SRREN) in 2011 and previous reports and incorporates subsequent new findings and research. The report assesses mitigation options at different levels of governance and in different economic sectors. It evaluates the societal implications of different mitigation policies, but does not recommend any particular option for mitigation.

URL:
https://www.ipcc.ch/site/assets/uploads/2018/02/ipcc_wg3_ar5_frontmatter.pdf
Texto también disponible en la biblioteca.



Climate Change 2014: Synthesis Report

Organización meteorológica mundial – OMM: SUIZA, 2014. 141 Pág. 151.

Texto en inglés

Contenido:

Observed Changes and their Causes -- Future Climate Changes, Risk and Impacts -- Future Pathways for Adaptation, Mitigation and Sustainable Development -- Adaptation and Mitigation.

URL:
https://www.ipcc.ch/site/assets/uploads/2018/05/SYR_AR5_FINAL_full_wcover.pdf
Texto también disponible en la biblioteca.

Libros

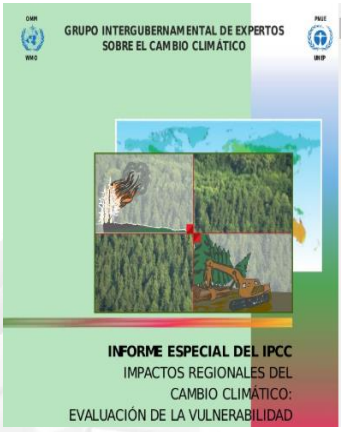
Cambio climático 2014: impactos, adaptación y vulnerabilidad: resúmenes, preguntas frecuentes y recuadros multicapítulos

Organización meteorológica mundial – OMM: SUIZA, 2014. Pág. 200.

Texto en inglés

La contribución del Grupo de trabajo II al Quinto Informe de Evaluación del Grupo Intergubernamental de Expertos sobre el Cambio Climático (GTII IE5 del IPCC) estudia los impactos, adaptación y vulnerabilidad en relación con el cambio climático. Ofrece una panorámica general y actualizada del estado actual de conocimientos y el nivel de certidumbre, basándose en la literatura científica, técnica y socioeconómica disponible. Al igual que con los demás productos del IPCC, el informe es el resultado de un proceso de evaluación concebido para poner de relieve tanto los mensajes sobre el panorama general como sobre los detalles fundamentales, integrar los conocimientos de las diversas disciplinas, evaluar la solidez de la evidencia subyacente a las conclusiones e identificar los temas en los que existen carencias de conocimientos. La evaluación se centra en brindar información que apoye una buena toma de decisiones por las distintas partes interesadas a todos los niveles. Es una singular fuente de conocimientos que sirve de apoyo a las decisiones y al mismo tiempo evita de forma escrupulosa tomar partido por ninguna opción de política particular.

URL:
https://www.ipcc.ch/site/assets/uploads/2018/03/WGIIAR5-IntegrationBrochure_es-1.pdf
Texto también disponible en la biblioteca.



Impactos regionales del cambio climático: evaluación de la vulnerabilidad

Organización meteorológica mundial – OMM: SUIZA, 1997. Pág. 16.

Texto en español

Contenido:
Alcance de esta evaluación – Naturaleza del tema – Modo de plantear la evaluación – Consideraciones generales sobre la vulnerabilidades regionales al cambio climático – Adaptación anticipada en el contexto de las políticas y la situación actuales – La vulnerabilidad al cambio climático según las regiones – Necesidades de investigación.

Texto completo en la biblioteca

Libros

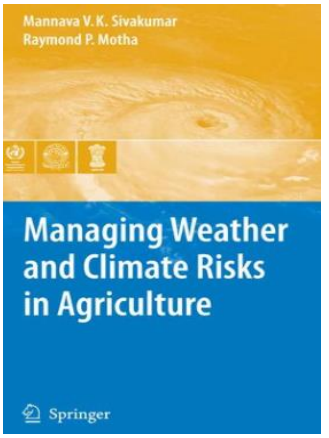
Texto completo en la biblioteca Anual Report 2018: a year of solidarity

Coperazione Internazionale - COOPI: ITALIA, 2014. Pag. 43.

Texto en Inglés

Contenido:
Who is COOPI? – Regional approach, innovation, effectiveness: the COOPI Strategy – COOPI´S imprint: activities and results – The resources of COOPY.

Texto completo en la biblioteca



Challenges and Strategies to face Agrometeorological Risks and Uncertainties — Regional Perspective in South America. En: Managing weather and climate risks in agriculture

Constantino Alarcón Velazco

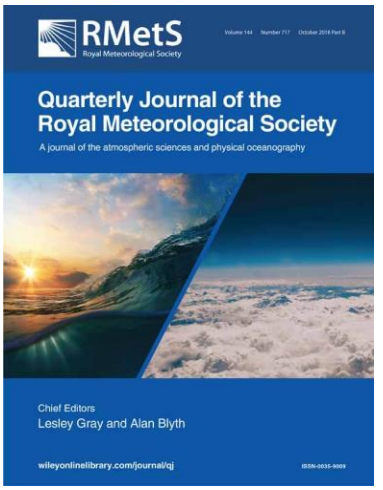
New York: Springer, 2007. 503 Pág.
p. 71-82.

Texto en inglés

South America is one of the regions in the world, most exposed to a wide range of hydro-meteorological hazards, according to the EM-DAT, an international database on disasters that the Office of US Foreign Disaster Assistance (OFDA) is in charge of. The Center for Research on the Epidemiology of Disasters (CRED) estimates that between 1980 and 2005, almost 80% of the natural disasters, 30% of the loss of human life and 75% of economic loss that took place in the Region were caused by hydro-meteorological conditions and hazards.

Texto completo disponible en la biblioteca.
Link: https://www.springer.com/gp/book/9783540727446

Artículos Científicos



Revista: International Journal of Climatology RMET

Climatology of extreme cold events in the central Peruvian Andes during austral summer: origin, types and teleconnections

Juan Sulca, Mathias Vuille, Paul Roundy, Ken Takahashi, Jhan-Carlo Espinoza, Yamina Silva, Grace Trasmonte, Ricardo Zubieta

Vol. 144, Number 717, 30 October Parte B. Issue 717.
p. 2693-2714. 30 August 2018.

Texto en inglés

The climatological and large-scale characteristics of the extreme cold events (ECEs) in the central Peruvian Andes (Mantaro basin (MB)) during austral summer (January–March) are examined using reanalysis, gridded and *in situ* surface minimum temperature (*T*min) data for the 1979–2010 period.

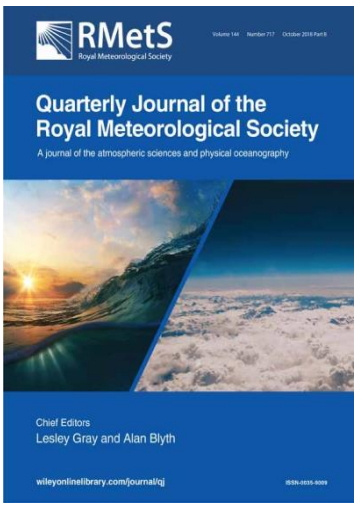
To describe the influence of the Madden–Julian Oscillation (MJO) on ECEs in the MB, two ECE groups are defined on the basis of the sign of the outgoing long-wave radiation (OLR) anomalies in the MJO band (30–100 days, 0–9 eastward) at 12.5°S, 75°W. Type-1 ECEs occur during the suppressed convection phase of the MJO (OLR anomalies ≥+2 W/m^2) while Type-2 ECEs occur during the enhanced convection phase of the MJO (OLR anomalies ≤−2 W/m^2).

ECEs in the MB are associated with the advection of cold and dry air along the east of the Andes through equatorward propagation of extratropical Rossby wave trains (ERWTs). This cold advection weakens the Bolivian High–Nordeste Low (BH-NL) system over South America (SA) at upper-tropospheric levels.

The MJO is an important driver of ECEs in the MB, favouring the cold advection along the Andes during specific MJO phases. Fifty-nine per cent of Type-1 ECE's and 86% of Type-2 ECE's occur in MJO Phases 7-2. Type-1 and 2 ECEs feature a weakened BH over SA at upper-tropospheric levels. For Type-1, ERWTs emanate from southeastern Africa in MJO Phases 8-1 while ERWTs are strengthened when crossing the subtropical southern Pacific Ocean during MJO Phases 2 and 7. With respect to Type-2, MJO Phases 7-2 feature circumpolar Rossby wave trains propagating toward SA.

Ultimately, MJO Phases 7-2 induce negative *T*min anomalies over MB, while MJO Phases 3-6 induce positive *T*min anomalies. El Niño and La Niña strengthen negative *T*min anomalies over the MB during MJO Phases 7-8 while they weaken positive *T*min anomalies over the MB during MJO Phases 3-6.

DOI: https://doi.org/10.1002/qj.3398
Texto completo disponible en la biblioteca.



Revista: International Journal of Climatology RMET

Area precipitation probabilities derived from point forecasts for operational weather and warning service applications

Reinhold Hess, Bjoern Kriesche, Peter Schaumann , Bernhard K. Reichert , Volker Schmidt

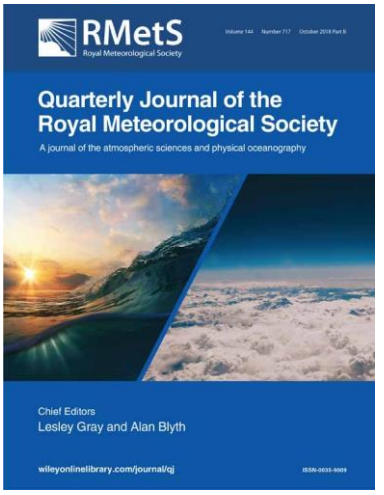
Vol. 144, Number 717, 30 October Parte B. Issue 717.
p. 2392 – 2403. 10 April 2018.

Texto en Inglés.

Probabilistic precipitation forecasts from numerical models are often calibrated using synoptic observations. The resulting probabilities of precipitation refer to the observation system and thus provide the likelihood that precipitation occurs exactly at the spot of the rain gauge. When probabilistic forecasts are required for larger areas, such as rural districts or catchment areas of rivers, it is not possible to interpolate the point probabilities. Instead area probabilities e.g. increase with the size of the area. In this paper we describe a general method to derive area probabilities from point forecasts based on models and methods of stochastic geometry. The method can be applied over arbitrary areas and can be used for operational applications, since it runs fully automatically without human interaction. The basic idea is to model precipitation patterns by circular precipitation cells using a germ–grain model driven by a spatial Poisson point process in a way that the point forecasts are fitted. Area probabilities can then be estimated statistically as relative frequencies based on repeated Monte Carlo simulations. As the area probabilities significantly depend on the sizes of the modelled precipitation cells, suitable cell radii are estimated based on the spatial correlation structure of given point probabilities. Verification with independent radar precipitation and comparison with area probabilities derived from the raw ensemble system COSMO-DE-EPS of DWD is provided and reveals essential advantages of the stochastic model in terms of bias and Brier skill score.

DOI: https://doi.org/10.1002/qj.3306

Texto completo disponible en la biblioteca.



Revista: International Journal of Climatology RMET

A global coupled ensemble data assimilation system using the Community Earth System Model and the Data Assimilation Research Testbed

Alicia R. Karspeck, Gokhan Danabasoglu, Jeffrey Anderson, Svetlana Karol, Nancy Collins, Mariana Vertenstein, Kevin Raeder, Tim Hoar, Richard Neale, Jim Edwards, Anthony Craig

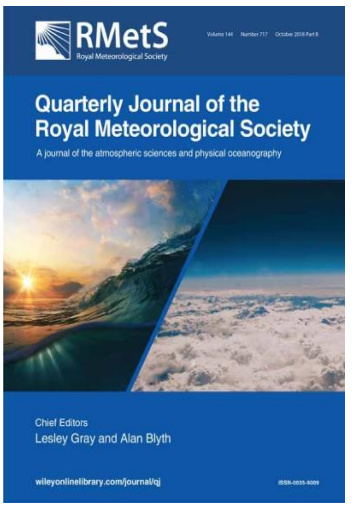
Vol. 144, Number 717, 30 October Parte B. Issue 717.
p. 2404 – 2429. 16 April 2018.

Texto en inglés

This paper presents a description of the CESM/DART ensemble coupled data assimilation (DA) system based on the Community Earth System Model (CESM) and the Data Assimilation Research Testbed (DART) assimilation software. The CESM/DART should be viewed as a flexible system to support the DA needs of the CESM research community and not as a static reanalysis product.
In this implementation of the CESM/DART, conventional *insitu* observations of the ocean and atmosphere are assimilated into the respective component models of the CESM using a 30-member ensemble adjustment Kalman filter (EAKF). CESM/DART is run in a "weakly coupled" configuration wherein observations native to each climate system component only directly impact the state vector for that component. Information is passed between components indirectly through the short-term coupled model forecasts that provide the EAKF background ensemble. This system leverages previous ensemble DA development for the Community Atmosphere Model and Parallel Ocean Program models using the DART EAKF. The CESM/DART project is a step towards providing increasingly useful DA capabilities for the CESM research community.
Results are presented for our prototype 12-year reanalysis, run from 1970 to mid 1982. Multiple lines of evidence demonstrate that the system is capable of constraining the CESM coupled model to simulate the historical variability of the climate system in the well-observed Northern Hemisphere. A collection of monthly average variables, climate mode indices, observation diagnostics and snapshots of synoptic weather in the ocean and atmosphere are compared to established datasets, showing especially good agreement in the Northern Hemisphere. A discussion of the CESM/DART as a modular, community facility and the benefits and challenges associated with this vision is also included.

DOI: https://doi.org/10.1002/qj.3308

Texto completo disponible en la biblioteca.



Revista: International Journal of Climatology RMET

Polarimetric X-band weather radars for quantitative precipitation estimation in mountainous regions

Nan Yu , Nicolas Gaussiat , Pierre Tabary

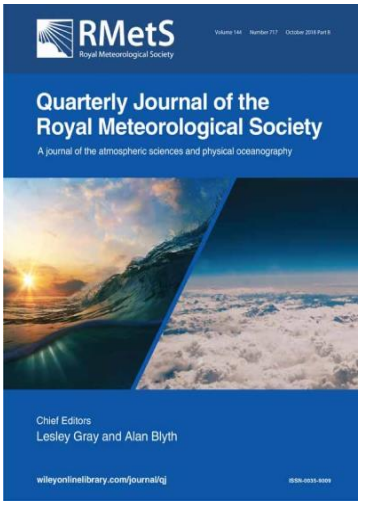
Vol. 144, Number 717, 30 October Parte B. Issue 717.
p. 2577 – 2591. 26 June 2018

Texto en inglés

In order to minimize the economic and social impact of hazardous weather in the Alps, three X-band dual-polarization radars were deployed in the southeast of France during the RHYTMME project in 2011–2013 and more recently have been incorporated formally into the conventional radar network already operating S- and C-band radars. In this mountainous region, the radars' beam shielding by the complex terrain, the very different altitudes of the radars, the significant attenuation at X-band and the low density of rain-gauges have made the integration of these radars into the operational service a challenging exercise. In this article, the framework used to evaluate the corrections applied to the volume data produced by the radars is presented and the residual errors related to the partial beam blockages, the attenuation by rain, the wet radome, and the melting layer are carefully studied and disentangled. The results of the analysis suggest that: (a) the beam blockage correction requires the use of a much higher resolution digital elevation model (DEM) in mountainous regions than the 250 m resolution DEM currently uses, (b) the dual-pol reflectivity (Zh) attenuation correction used at Météo-France performs well in the rain but the differential attenuation on Zdr is overestimated, (c) the attenuation of wet snow is underestimated and a mean error of 2 dB is induced by the melting layer in spring and autumn, (d) the wet radome, as well as producing significant attenuation on Zh, induces differential attenuation on Zdr. The attenuation in the melting layer is further investigated taking advantage of the height difference between the radar sites. A new specific attenuation coefficient for wet snow is suggested and it is shown to reduce the seasonal bias on three particular events observed in spring and autumn.

DOI: https://doi.org/10.1002/qj.3366

Texto completo disponible en la biblioteca.



Revista: International Journal of Climatology RMET

An atmospheric dynamics perspective on the amplification and propagation of forecast error in numerical weather prediction models: A case study

Christian M. Grams , Linus Magnusson, Erica Madonna

Vol. 144, Number 717, 30 October Parte B. Issue 717.
p. 2577 – 2591. 30 June 2018.

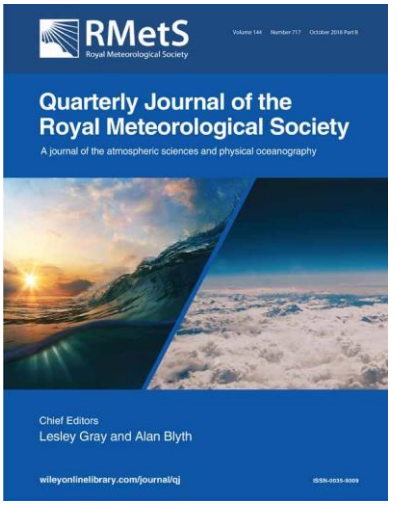
Texto en inglés

Despite huge progress made, state-of-the-art numerical weather prediction systems occasionally experience severe forecast busts for the large-scale extratropical circulation. This study investigates one of the most severe forecast busts for Europe in the European Centre for Medium-Range Weather Forecasts integrated forecasting system (IFS) in recent years. The forecast bust occurred in March 2016 and was associated with a misforecast of the onset of a blocking regime. We investigate the evolution of the forecast error in the IFS ensemble by employing a potential vorticity perspective combined with Lagrangian diagnostics. We show that the error grows rapidly from an initially small perturbation in the detailed structure of an upper-level trough near Newfoundland. This trough triggers strong diabatic warm conveyor belt activity in the North Atlantic region. The misrepresentation of this warm conveyor belt activity in the ensemble forecast amplifies the initial condition error and communicates it downstream into Europe. Specifically, the ensemble underestimates poleward warm conveyor belt ascent and associated warm conveyor belt outflow into high latitudes. Instead, all ensemble members forecast too strong warm conveyor belt outflow further to the south, which ultimately results in a wrong forecast of the upper-level Rossby wave pattern over Europe. This case study shows that warm conveyor belts and the associated latent heat release in slantwise ascending air can trigger a nonlinear feedback mechanism that amplifies forecast error strongly and communicates it into regions far downstream. It corroborates the fact that multiscale interactions and moist-and dry-dynamical processes ranging from microphysical to synoptic scales need to be represented accurately in numerical weather prediction, in order to predict the extratropical large-scale circulation correctly.

DOI: https://doi.org/10.1002/qj.3353

Texto completo disponible en la biblioteca.

Artículos Científicos



Revista: International Journal of Climatology RMET

Polarimetric X-band weather radars for quantitative precipitation estimation in mountainous regions

Nan Yu , Nicolas Gaussiat , Pierre Tabary

Vol. 144, Number 717, 30 October Parte B. Issue 717.
p. 2603 – 2619.

Texto en inglés

In order to minimize the economic and social impact of hazardous weather in the Alps, three X-band dual-polarization radars were deployed in the southeast of France during the RHYTMME project in 2011–2013 and more recently have been incorporated formally into the conventional radar network already operating S- and C-band radars. In this mountainous region, the radars' beam shielding by the complex terrain, the very different altitudes of the radars, the significant attenuation at X-band and the low density of rain-gauges have made the integration of these radars into the operational service a challenging exercise. In this article, the framework used to evaluate the corrections applied to the volume data produced by the radars is presented and the residual errors related to the partial beam blockages, the attenuation by rain, the wet radome, and the melting layer are carefully studied and disentangled. The results of the analysis suggest that: (a) the beam blockage correction requires the use of a much higher resolution digital elevation model (DEM) in mountainous regions than the 250 m resolution DEM currently uses, (b) the dual-pol reflectivity (Zh) attenuation correction used at Météo-France performs well in the rain but the differential attenuation on Zdr is overestimated, (c) the attenuation of wet snow is underestimated and a mean error of 2 dB is induced by the melting layer in spring and autumn, (d) the wet radome, as well as producing significant attenuation on Zh, induces differential attenuation on Zdr. The attenuation in the melting layer is further investigated taking advantage of the height difference between the radar sites. A new specific attenuation coefficient for wet snow is suggested and it is shown to reduce the seasonal bias on three particular events observed in spring and autumn.

DOI: https://doi.org/10.1002/qj.3366

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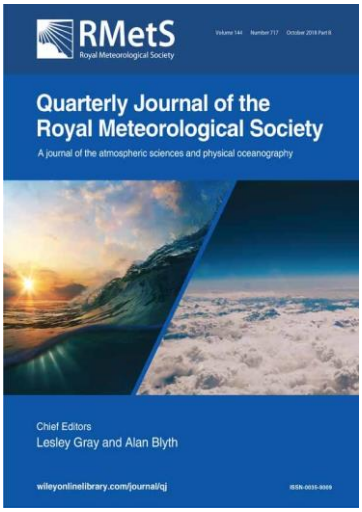

Revista: International Journal of Climatology RMET

Clustering and selection of boundary conditions for limited-area ensemble prediction

François Bouttier , Laure Raynaud

Vol. 144, Number 717, 30 octubre 2018.
p. 2381 – 2391. 15 April 2018.

Texto en inglés

Limited-area ensemble predictions can be sensitive to the specification of lateral boundary conditions, which are often built by subsampling larger ensembles. Using the operational PEARP and AROME-EPS ensembles, we compare several subsampling methods, including random selection, representative members, and a new selection method. The tests show that the algorithms used for the clustering and the member selection have a significant impact on the resulting ensembles. Clustering-based methods are shown to outperform random subsampling, mostly (but not only) because they change the ensemble spread. Cluster sizes can be highly variable, which can complicate ensemble interpretation. We present a subsampling algorithm that has little impact on performance scores, but better preserves ensemble spread and produces nearly equally likely members by limiting cluster size variability.

DOI: https://doi.org/10.1002/qj.3306
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