NCAR’s Research Applications Laboratory. RAL conducts directed research that contributes to fundamental understanding of the atmosphere and related physical, biological, and social systems; supports, enhances, and extends the capabilities of the scientific community; and develops and transfers knowledge and technology for the betterment of life on Earth. RAL strives to be a world-class leader in performing collaborative end-to-end research, development, and technology transfer.

OPPORTUNITIES

Collaborative Research. RAL scientists and engineers actively seek opportunities to collaborate with university investigators in developing proposals in a wide range of application areas, including: short-term weather forecasting, hydrology, water cycle, renewable energy, aviation, surface transportation including connected vehicles, dispersion modeling, weather decision support systems, economic evaluation of weather information, communication of weather risk, weather data analytics, climate and health, GIS, climate services, community support for numerical weather prediction, data assimilation, urban meteorology and modeling, agriculture, and wildland fire. Visit: www.ral.ucar.edu

RAL Visitor Program. RAL encourages and supports collaboration with colleagues within the U.S. and abroad. To further those interactions we offer a variety of opportunities to visit RAL and work with our staff, providing administrative and computing support as well as travel and per diem support for selected visitors. Visit: ral.ucar.edu/general/about/visitor_program.php

Developmental Testbed Center (DTC) Visitor Program. Through an annual announcement, the DTC solicits research proposals to test new forecasting and verification techniques, models and model components for numerical weather prediction (NWP). Selected visitors receive salary support, as well as travel and per diem. Graduate student opportunities are also provided. Visit: www.dtcenter.org/visitors

Graduate Student/Postdoctoral Opportunities. RAL provides support for graduate research assistants and postdoctoral scientists in partnership with NCAR’s Advanced Study Program (ASP) and other sponsors such as NOAA, the Bureau of Reclamation, Army Corps of Engineers, and Centers for Disease Control. The DTC also offers opportunities for graduate student visitors. Visit: ral.ucar.edu/general/about/visitor_program.php

Warner Internship for Scientific Enrichment (WISE) Fellowship. In conjunction with ASP, RAL offers a graduate student visitor opportunity in memory of Professor Tom Warner and his commitment to the role of science in service to society. Students receive travel funds and a monthly stipend to support their visit to NCAR and enhance work on their PhD theses. Visit: www.asp.ucar.edu/graduate/graduate_visitor.php
Workshops and Tutorials. RAL hosts a number of workshops and tutorials to which members of the community are invited. Regularly scheduled training events are focused on the Weather Research and Forecasting (WRF) model; the Model Evaluation Tools (MET); and the Gridpoint Statistical Interpolation (GSI) data assimilation system. A number of workshops focused on specific topics are also held each year and advertised on the RAL website. Visit: ral.ucar.edu/general/events

COMMUNITY RESOURCES

GIS Program. The GIS program fosters interdisciplinary science, spatial data interoperability, and knowledge sharing using Geographic Information Systems. The goal of our program is to promote and support the use of GIS as both an analytical and infrastructure tool in atmospheric research, as well as using the discipline to address broader issues of spatial data management, interoperability, and geoinformatics within the geosciences. Visit: gis.ucar.edu

Model Evaluation Tools. MET is a community toolkit developed in RAL to help the numerical weather prediction community assess and evaluate model performance. It includes a variety of advanced verification methods that have been developed by the international community and that are particularly relevant for mesoscale models. MET version 5.0 was released in September 2014. Visit: www.dtcenter.org/met/users

Data Sets. The RAL Global Climate Four-Dimensional Data Assimilation (CFDDA) reanalysis is a dynamically downscaled data-set with high temporal and spatial resolution that was created using NCAR’s CFDDA system. The data-set contains three-dimensional hourly analyses in netCDF format for the global atmospheric state from 1985 to 2005 on a 40 km horizontal grid (0.4 degree grid increment) with 28 vertical levels. As a result, the data-set provides a collection of hourly, meso-beta scale reanalyses files for all the days of each month within the 21-year period, providing good representation of local forcing and the diurnal variation of processes in the planetary boundary layer. Access to these data is provided by the CISL Research Data Archive. Visit: rda.ucar.edu/datasets/ds604.0

WORK WITH US

Tapping into the scientific expertise at NCAR and UCAR’s university partners, RAL conducts directed research and development focused on tailored solutions to specific weather and climate problems. From the aviation, energy, and defense industries to the government’s operational forecasting entities, RAL builds and maintains strong relationships with decision makers. RAL scientists and engineers work broadly across disciplines, collaborating with colleagues in the research and operational science communities. We participate in all phases of the R&D cycle, with careful assessment of the science and its readiness for application, thoughtful discussions with the user community about real needs and the readiness to accept and exploit new capabilities, and focused attention on the necessary human and computational resources required to test, validate and deliver technology.

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