

RENCI: Research \ Engagement \ Innovation for North Carolina

- *RENCI translates science into solutions.*
- *RENCI allows North Carolina to compete for key state and national programs.*

The Institutions best equipped to research, develop, deploy and used advanced cyberinfrastructure will be the problem solvers. –Edward Seidel, National Science Foundation

RENCI will make NC the preeminent national center of Cyberinfrastructure (CI) R&D

- CI comprises computing, data management, analytics, software, visualization, virtual organizations, advanced networks and human expertise.
- RENCI's CI originates at UNC, connects to many UNC campuses, other states through national partnerships and international partners.

RENCI Enables Innovation and Economic Development

- ✓ **Research Engagement & Capabilities Hub for NC:** RENCI visual analytics tools and iRODS-based data warehousing will allow UNC researchers to **find the best strategic collaborators for competitive research partnerships**. Users can query faculty expertise, UNC system capacity by industry and issue, research capacity by region, research strengths and funding trends.
- ✓ **Carolina Launch Pad:** enhances efforts of **Kenan-Flagler Business School** and **Office of Technology Development**; student venture named 2010 **Carolina Challenge** winner.

RENCI's Carolina Launch Pad gave us a place outside the laboratory where we could concentrate on our business idea. That's just not possible when you are in the lab or your campus office. –Dr. Cam Patterson, Chief of Cardiology, UNC School of Medicine and Director, McAllister Heart Center

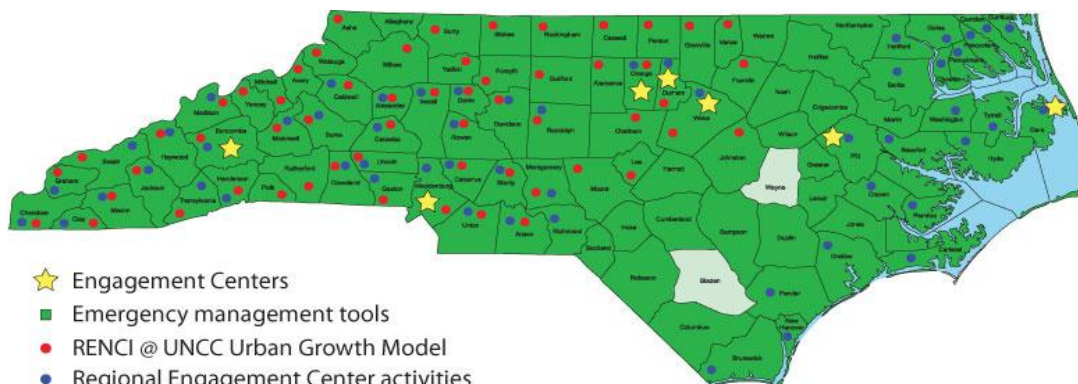
RENCI Extends the Reach of UNC

- ✓ High-resolution storm surge modeling made possible by RENCI supercomputers used to develop **new floodplain maps for North Carolina**. Maps are used in regional planning decisions that impact developments worth **hundreds of millions of dollars**.
- ✓ Success of storm surge models led to **\$15M in federal and state funding** to model storm surge and sea level rise and to compute storm surge from the northern Outer Banks to Maryland.

RENCI has played a critical role in adapting my ADCIRC storm surge model for North Carolina and has created an end-to-end system that looks at weather, surge, rain and hydrology as a whole system. RENCI turned a small plant into a garden. –Rick Luettich, Director, Institute of Marine Sciences

- ✓ **Emergency Managers in 98 of 100 NC counties** have been trained to use **NC-FIRST**, a Web portal that aggregates information from hundreds of sources into a location-specific, customizable and easy-to-use format. NC-FIRST enables better emergency response across the state.

RENCI Outreach, All Programs



- ✓ **RENCI at UNC Asheville** created computer models and decision support tools to understand the impacts of development on mountain communities and to mitigate the effects of floods and landslides.

RENCI at UNC Asheville is **THE** magnet drawing visualization talent to Asheville and birthing an industry. – *Mack B. Pearsall, President, Pearsall Operating Company*

- ✓ **RENCI at UNC Charlotte's** Urbanization Explorer analyzes impacts of growth on the environment, public service infrastructure & quality of life 1970 – 2030. Model first covered Charlotte region; expanded to Western NC and will soon cover Piedmont, Triad and eastern NC.
- ✓ **RENCI at East Carolina University** created the Coastal Hazards Web Portal for emergency managers and the public, with historical data, forecasts, current conditions and more.

RENCI connections between Charlotte and Chapel Hill have launched a new research and engagement bridge between our campuses. I look forward to working together to build and sustain new RENCi collaborations. – *Philip L. Dubois, Chancellor, UNC Charlotte*

- ✓ **RENCI at the UNC Coastal Studies Institute** uses a 360-degree Immersive Media video camera for storm-related damage assessments in Dare County and to capture 360-degree video of historic and cultural sites, such as the Cape Hatteras Lighthouse.

RENCI Creates Strategic Partnerships: Medicine/Genomics

- ✓ RENCi partners with **NC TraCS (UNC CTSA award)** to build the secure virtual workspace needed to conduct research using sensitive patient data.
- ✓ RENCi works with the **Medical Genetics Department** in the **UNC School of Medicine** to build infrastructure to support the application of genomic sequencing to translational research.
- ✓ RENCi participates in a **\$10M, 5-year project** to reduce cardiovascular disease risks in low-income populations. Project leaders are the **Center for Health Promotion and Disease Prevention** and the **UNC School of Medicine**.
- ✓ RENCi collaborates with the **Alcohol Studies Center** on **\$6M** proposal to study adolescent drinking (NIH).

I could not have submitted the multi-institutional proposal “Neurobiology of Adolescent Drinking in Adulthood” without the help of RENCi. The expertise and infrastructure provided by RENCi for collaborative, multi-site studies is a tremendous asset to UNC. –*Fulton Crews, Director, Alcohol Studies Center*

RENCI Supports Collaborations: School of Information and Library Science (SILS)

- ✓ RENCi partners with SILS on **\$19.8M NSF DataNet Federation Consortium** proposal. Partners include **Odum Institute, Carolina Data Repository, Duke and NC State**.
- ✓ RENCi helps the **Data Intensive Cyber Environments (DICE)** center to deploy a federated data cyberinfrastructure for Triangle area campuses (**\$2.7M from TUCASI**)
- ✓ RENCi leads the technology deployment effort for BOT 2.0, which teaches botany and metadata literacy to non-traditional students using social media technologies (NSF).

Number of research awards received since July 2009: 18 (25 submitted, \$3.3M awarded)

Pending funding proposals: 34 (14 led by campus partners)

Potential funding for RENCi: \$13.8M

Potential funding for partners: \$69.5M



THE UNIVERSITY
of NORTH CAROLINA
at CHAPEL HILL

NC STATE UNIVERSITY



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