

R for climate research

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We demonstrate using examples from our recent research papers that the R statistical language and its packages are excellent tools for climate research. The development of our expertise in R is based on the need to perform statistical analysis on climate data in research and industry. We show examples based on our work with hurricane activity and climate. Each example uses analytical and graphical functions. We demonstrate the use of

1. glm and associated functions for exploring the relationship between climate and hurricane activity.
2. analysis and graphing functions from the ismev package for exploring the role of climate on hurricane intensity.
3. graphical functions developed for selecting hurricane tracks and local wind maximums.
4. quantile regression functions from the quantreg package for exploring the relationship between increased sea surface temperature and global tropical storm intensity.
5. functions from the BRugs package for accessing OpenBugs used for analyzing the relationship of insured losses due to hurricanes to global climate covariates.

In each case we explain the advancements made in understanding the role that climate plays in the nature of tropical storm activity and insured losses from these storms.

All demonstrations will be available on our Hurricane Climate website at: <http://garnet.acns.fsu.edu/~jelsner/www/>