Applied Statistician (Tropical Cyclone Modeling)

Come join the Stochastic Modeling Team in AIR’s Boston-based Research Department, and contribute to building the next generation of probabilistic catastrophe models for assessing the risk of hurricanes and tropical cyclones. Our team projects offer opportunities for creative problem-solving on a boundless set of interesting statistical problems at the interface of extreme weather, climate change, and risk. Catastrophe models depend fundamentally on hierarchical modeling of space-time physical processes, inference from heterogeneous and incomplete calibration data, and use of ensemble techniques to quantify uncertainties. We learn continuously through interdisciplinary collaborations with a diverse team of meteorologists, applied mathematicians, climate scientists, engineers, and hydrologists. As such, this is a fantastic position for a curious statistician with a passion for modeling atmospheric processes! In addition to possessing sharp technical skills, we also hope you will bring a practical, applied mindset to the role. Our team’s work contributes toward building tools that enable the (re)insurance sector to make sound decisions to enhance social resilience to natural catastrophes. For the right person, we have leeway to flex this hire toward recent graduates of advanced degree programs in statistics, or to seasoned statisticians with further research or industry experience.

**Day to Day Responsibilities**

- Work with domain-area experts in meteorology, hydrology, and engineering to understand relevant data sets and translate model calibration and validation needs into statistical analysis and models
- Contribute collaboratively to model formulation, improvement, and implementation for building the next generation tropical cyclone model based on latest science
- Analyze and validate AIR’s simulated hurricane track sets against observational data to ensure statistical robustness. In select cases, perform validation exercises to demonstrate compliance with rigorous regulatory statistical standards. As part of a team, defend the statistical analysis on behalf of AIR to external statisticians.
- Contribute to identification, inference, and modeling of significant nonstationarities in tropical cyclone data, including those that may be due to climate change
- Help formulate answers to client questions related to the statistical aspects of AIR’s tropical cyclone models

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**Required Skills and Qualifications**
• Advanced degree in statistics strictly required (MSc. Required, PhD preferred, relevant post-doctoral experience may also be a plus)
• Theoretical and applied command of time-series and/or spatial and/or spatio-temporal statistical modeling techniques
• Excellent communication in both technical and non-technical contexts
• Ability to present and defend statistical results on behalf of the organization in front of external statisticians and regulators. Willingness and confidence to provide statistical leadership and guidance to team members and senior management.
• Motivated to contribute creative technical solutions to collaborative team projects, and to implement solutions reproducibly in robust and well-tested code
• Fluency in at least one programming language (such as R, python, Matlab, fortran, C, C++, Java)
• Experience with either data assimilation or Gaussian process emulation of high-dimensional computer models would be a bonus
• Experience with R package development would be a plus.