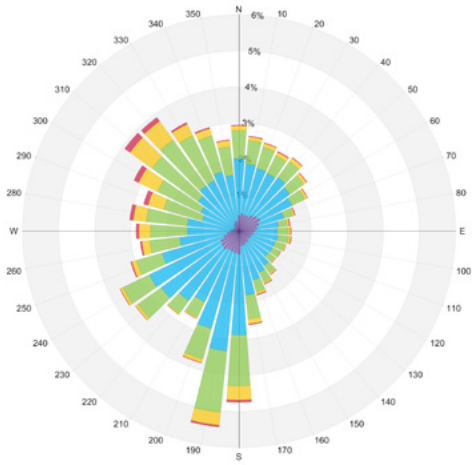
CLIMATE CHANGE STUDIES

Using comprehensive expertise, sophisticated computational techniques and high-quality historical data to derive future weather trends

Climate change ranks high among the uncertainties of current times. If your projects or operations are sensitive to weather in any way, you may be asking these difficult questions:



- How is the climate changing?
- How will those changes affect my buildings, my community, my business?
- How should I prepare for the changes that might occur?

Our service

We identify historical changes and project future changes in weather that could affect the infrastructure or operations of a company or a municipality. We project trends in both typical and extreme conditions, looking out about 20 to 30 years.

We can also consult on specific scenarios of concern to you. We always translate our technical meteorological information into terms that are relevant to your field and the way you make decisions. And beyond that, we offer insights that translate data into exceptionally creative solutions.

In terms of data, we routinely access standard climate forecasts from the Intergovernmental Panel on Climate Change (IPCC), and we work with you to interpret these forecasts for mitigation or adaptation.

However, our key strength lies in our numerical and statistical "downscaling" techniques. With these methods we move climate analysis from a global scope down to the spatial scales that are relevant to you—at any locale in the world.

We also address the consequences of climate change from a wide range of perspectives. At RWDI, climate change teams work daily with both the science of climate and the engineering of buildings and infrastructure. For example, we use advanced weather modeling to predict the local climate impacts of global climate change. Then we interpret those results with an eye to resiliency of the local built environment—e.g., to temperature or precipitation—and suggest engineered adaptations.

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RWDI is a valuable partner to clients seeking to...

Explore Innovations

- Redesign operations to diminish climate impact
- Reimagine buildings to reduce energy use and climate impact, even in changing conditions

Create Opportunities

- Develop or modify master plans to improve a community's ability to adapt proactively to anticipated changes
- Minimize impact of changing weather on commercial operations—production, delivery, safety and profit
- Site renewable energy generation for future conditions

Meet Challenges

- Anticipate and provide for the needs of a community's most vulnerable residents
- Understand and plan for how weather trends could affect housing, public spaces and services:
  - Evaluate HVAC capacity in light of future changes
  - Design or retrofit for extreme winds
  - Consider risk of damage to bridges, roads and culverts from more frequent and intense flooding
  - Evaluate storm water management systems

Fulfill Expectations

- Ensure the integrity of a community and the safety of its residents by adapting emergency preparedness plans

How we work

We use a state-of-the-science weather model (known as WRF-ARW), which can be run on a very fine scale (1 x 1 kilometer) anywhere in the world. This model is driven by outputs from regional and global climate models with a coarser resolution (from 25 x 25 to 150 x 150 kilometers). The high-resolution output generated by WRF is the input to further analysis. Depending on your interests, we may run analytics to determine the impact of the modeled scenario on your industry. These analytics show how the climate is expected to change and how that change will impact your industry.

Our staff also includes experts on the science of greenhouse gases (GHG). We can quantify how your activities contribute to global climate change through GHG emissions and propose ways to reduce them. Other team members may consult on climate-related energy issues, such as reducing the energy demand of buildings and processes, siting of renewable energy sources, and changes in energy and building technology.