Advances in Meteorology

Special Issue on Climate Modeling for Renewable Energy Applications

Call for Papers

The exploration of new and environmentally friendly energy resources is one of the major challenges facing the human society today. The last decade has witnessed explosive developments in renewable energy engineering. Wind and solar power plants with increasing sizes and technological sophistication have been built. Amid this development, meteorological modeling becomes increasingly important not only for assisting the selection of the sites of wind and solar power plants but also for assessing their environmental impacts. This special issue presents an opportunity for researchers to disseminate state-of-the-art techniques of multiscale meteorological simulation for wind and solar energy applications. Articles on the fundamentals of dynamical and statistical downscaling and data assimilation are also welcome.

The permanent land -use changes as a result of the construction of a wind or solar power plant can potentially alter local climates. We encourage submissions of articles that quantify this effect using numerical models. We also welcome papers that use global model projection of large-scale climate change to aid the selection of the sites of wind and solar power plants, based on the premise that an optimal site today may not be optimal in one or two decades. Potential topics include, but are not limited to:

- Techniques of multiscale meteorological modeling, downscaling, and data assimilation for wind and solar energy applications
- Quantification of the mechanical and thermodynamic impacts of wind or solar power plants on the large-scale environment and climate
- Development of parameterization schemes for the effects of wind or solar power plants that are not directly resolved in meteorological models
- New thinking on using model-based global climate projection to refine the selection of the sites of wind and solar power plants

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