

A2C represents a ground-breaking approach to atmospheric modeling that integrates mesoscale modeling and computational fluid dynamics modeling (CFD) into a single model. YSA has created a true multiscale solution that provides users with a variety of options for predicting and visualizing airflow activity.

Mesoscale models forecast the weather (temperature, pressure, winds, and moisture changes with the change of time) while taking geographic features (mountains, oceans, lakes, hills) into account, typically with a horizontal grid spacing is $< 1\text{ km}$. Computational Fluid Dynamics (CFD) models, on the other hand, forecast airflows around buildings with a horizontal grid spacing is $> 1\text{ meter}$.

By merging mesoscale and CFD modeling capabilities, YSA provides more realistic scenarios than ever available before. In studying urban areas for urban heat island assessments, air quality issues, emergency response, environmental site assessments, and wind farm site planning, a number of factors need to be considered for an accurate result—weather, topography, and the effect of buildings on temperature and airflow. A2C uses a single model that incorporates the capabilities of both mesoscale and CFD modeling through our unique two-way nesting technology, which takes into account how weather may affect an urban area and what effects an urban area might have on the weather.

Because of our unique approach, you can analyze:

- Airflows over complex terrain
- Airflows around buildings with diurnal variations of weather conditions
- Recirculation flow, separation streamline, and reattachment points on a building
- Sea and land breezes
- Thermal effects of buildings
- Transport and diffusion of airborne particles and pollutants

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