Severe Convective Storms

Understanding the Growing Impact of Severe Convective Storms

While hurricanes have traditionally captured the spotlight in disaster risk management, severe convective storms (SCS), encompassing hail, tornadoes, and straight-line winds represent an increasingly significant threat to communities and insurers alike. Unlike hurricanes, which occur infrequently but with devastating impact, SCS events manifest as "death by a thousand cuts", more frequent, geographically dispersed events whose cumulative losses have been rapidly escalating in recent years. SCS events categorized as a "secondary peril" within Property & Casualty insurance lines, pose an ever-growing risk to residential properties across large parts of the American Midwest, Plains, and the South. This rapid increase in associated losses has created urgent challenges for property owners and insurers alike

IRMII's Research Focus

The IRMII Severe Convective Storm Project is dedicated to understanding the fundamental drivers behind this growing risk profile and developing practical solutions:

- **Hazard vs. Exposure Analysis**: Determining whether increasing losses stem primarily from changes in storm frequency/intensity or from expanding human development in vulnerable areas
- **High-Resolution Risk Modeling**: Developing advanced models that operate at finer spatial and temporal scales to better capture SCS behavior and impacts
- **Real-Time Loss Estimation**: Creating capabilities to model and assess losses in near real-time, enabling more responsive disaster management and insurance practices
- **Financial Risk Mitigation Tools Development**: Creating practical financial tools and methods to reduce and transfer SCS risk across the industry

The initiative is building specialized expertise in key regions across North America, with particular focus on high-risk metropolitan areas including Dallas-Fort Worth, Chicago, and Denver – regions that have experienced significant SCS activity and associated losses.

Through this comprehensive approach, IRMII aims to advance the understanding and management of severe convective storm risk, ultimately helping communities and insurers better prepare for and respond to these increasingly impactful events.