Convection is key in TC formation/intensification. If we allow convection to organize spontaneously "on its own" in a CRM, what feedbacks are most important, and how does a TC form?

Does this change as the background rotation changes? Use simulations across 14 f-planes to study this, split into 3 groups.

**Self-Aggregation (SA)**

Initialize convection randomly from an otherwise uniform field in radiative-convective equilibrium.

- **Low-f (0-20°)**: Transition zone between 2 well-defined regimes of SA. Negative advective feedbacks on SA suggest a dynamical influence by rotation as it increases.
- **Medium-f (6-8°)**: Tropical Cyclogenesis (TCG)

**Tropical Cyclogenesis (TCG)**

- **High-f: Mid-level vorticity maximum** first emerges, w/ cold core beneath and warm core above.
- **Increased static stability** enhances **low-level convective mass flux** and vorticity generation.
- **Low-f: Vortex generation** starts from low levels after SA completes and takes circular geometry.
- **Overturning circulation** associated w/ SA drives **persistent near-surface inflow** into moist region. Preceding mid-level vortex is not needed in low-f!

Model used in this study/ongoing work: System for Atmospheric Modeling 6.8.2 (Khairoutdinov and Randall 2003)

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