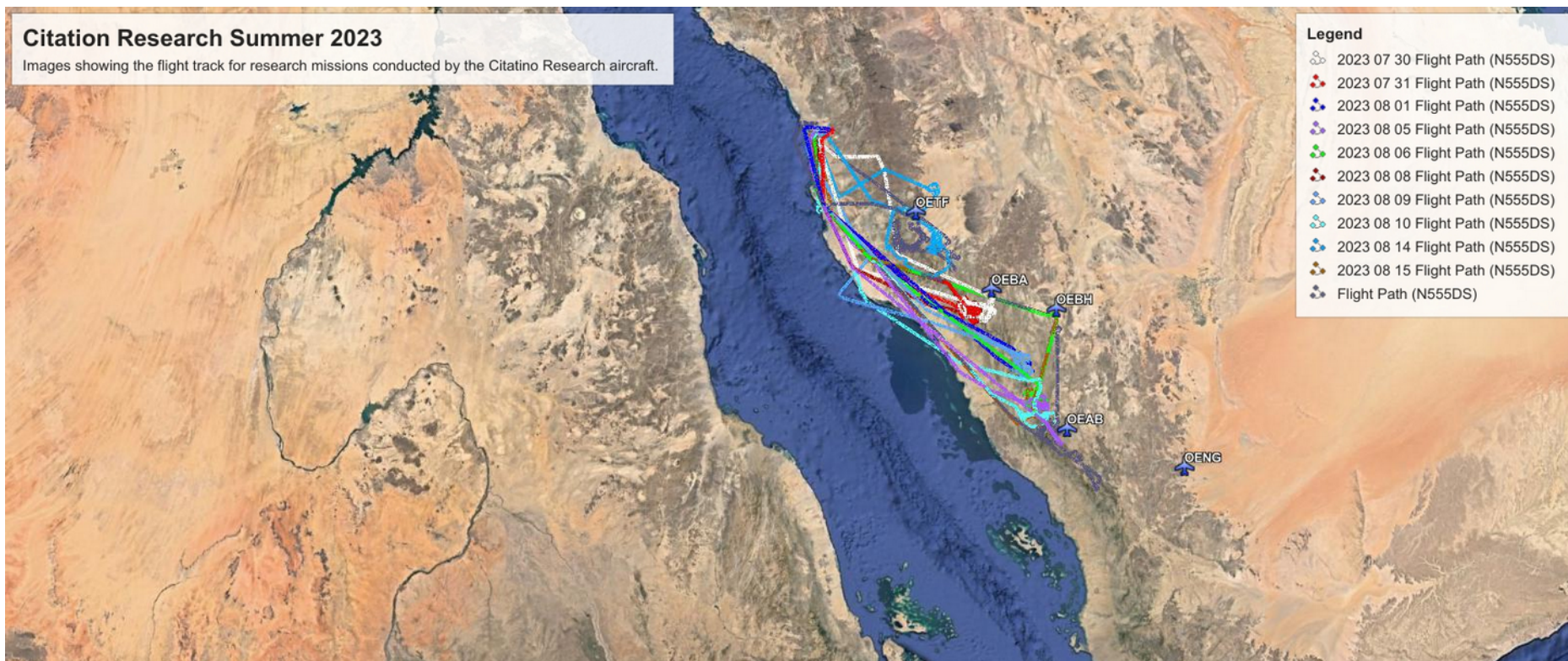


Flight Safety in Weather Modification Operations



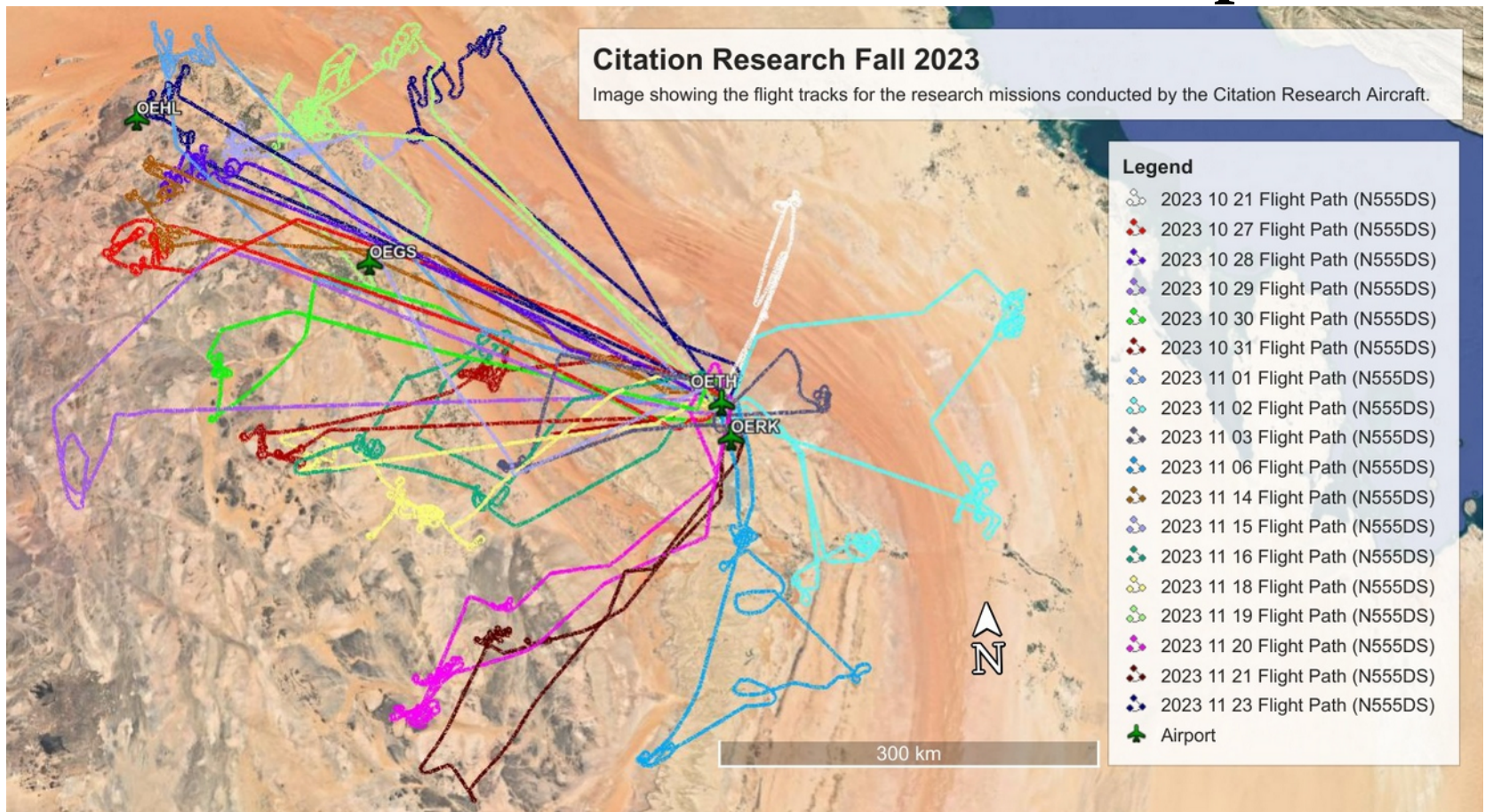
Key Flight Segments

- Flight Planning
- Departure
- En-route
- Seeding Considerations
- Landing



Flight Planning

- Know your Airplane
 - Capability
- Airworthiness
- Serviced
- Supplies
- Cockpit



Flight Planning

- Know Your Airports
- Alternates
 - IFR and VFR
- Approaches
- Lighting



Flight Planning

- **Know Your Atmosphere**
- **Stability**
- **Winds**
 - **Storm Motion**
 - **Off-field Landing Options**
- **Forecast**
 - **Duration, Coverage, Intensity**

Flight Planning

- **Know Yourself**
- **Physiology**
 - Are you safe to fly?
- **Limitations**
 - What are your personal minimums?



Flight Takeoff and Landing

- **Weather**
- **Primary hazard is low level wind shear due to:**
 - **Gust fronts**
 - **Micro-bursts**
- **High temperature runway requirements.**
- **Airport**
- **Lights**
- **Obstructions**

Flight Departure

- Main hazard is low level wind shear due to:
 - Gust Fronts
 - Micro-bursts



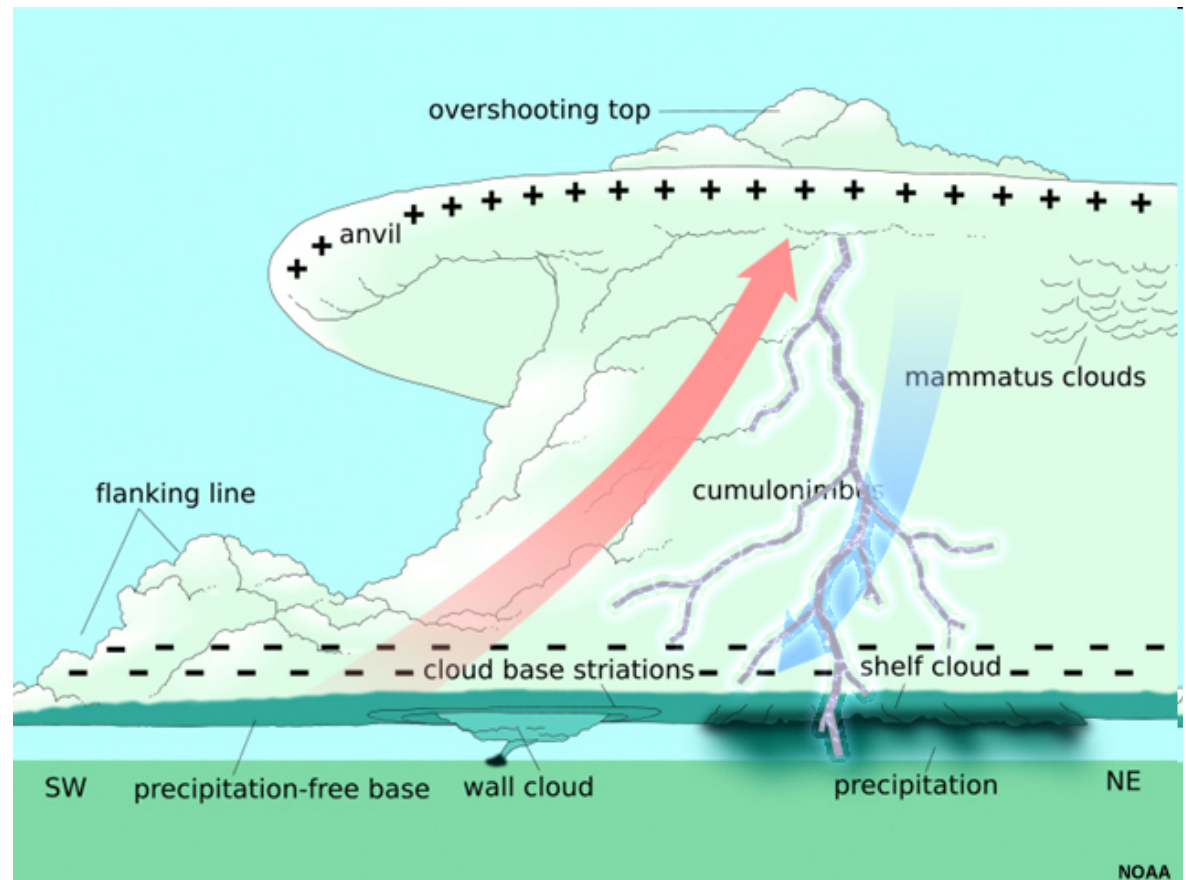
On Station

- **What is going to happen?**
- **What is the forecast?**
- **What do your eyes tell you?**
- **What is the timing?**
- **What is overall picture?**
- **Projection for your aircraft operations.**



On Station

- Where am I?
- Storm Reference
- Target Area Reference
- Other Aircraft
- Clearances



On Station

- **What is happening?**
- **Weather Trend**
 - Visual (Tops, Bases, Outflows, Lightning)
 - Radar
 - Communications
- **Below-base Conditions**
 - Scud, Inflow Strength, Cloud Base Features



On Station – Where is the OUT

- **Bail-out Heading**
- **Radar Help**



Flight Operations

- **Emergency Procedures**
- **FLY THE AIRPLANE**
- **Gather Facts**
- **Go to Bail-out Heading**
- **Communicate**
- **Leave power alone unless absolutely necessary.**
- **Need two of the following:**
 - **Altitude**
 - **Airspeed**
 - **Ideas**



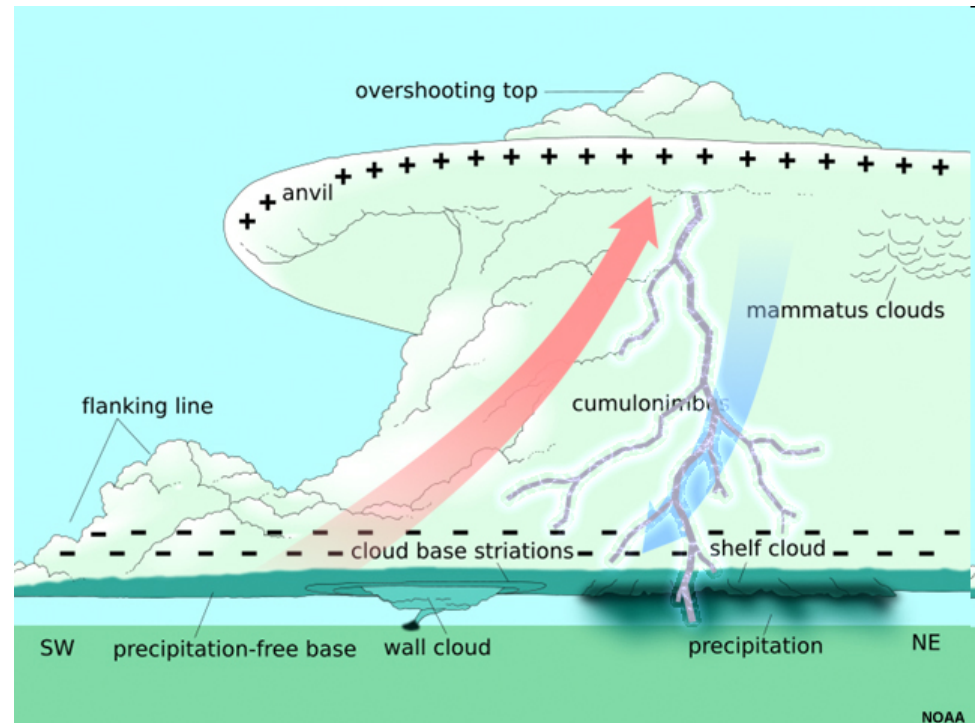
Flight Operations – Top Seeding

- **Maintain attitude and watch airspeed.**
- **Don't penetrate without knowing what's on the other side.**
- **Generally penetrate perpendicular to the shear.**
 - **Test the cloud edge if in doubt.**
- **Turn on anti-ice before penetration.**
- **If props ice up, change revolutions per minute (RPM).**

Flight Operations – Base Seeding

- Don't get sucked up.
- Beware of lowering bases.
- Avoid outflow boundaries, back side of storm.
- Watch for other aircraft.

Where is the back side of the storm?



Flight Operations

- Use on-board radar.
- Be careful about penetrating storm with cloud tops greater than 30,000 ft.
- Do not fly through reflectivities more than 50 dBz.
- Do not ever fly toward a radar shadow

