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Lapse Rate

Completed Project

Greg Baxter, November 2017



Lapse Rate

Objective

- To identify techniques to measure when the atmosphere in proximity to a wildfire is in a super-adiabatic condition (extremely unstable) and then deliver this information to fire managers in almost real-time.

Methods

- Investigated sensors and aircraft for data collection and settled on using Conair's RJ85 airtanker as it collected the required data which was accessible through their data management company.

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Results

- Two seasons of flight data collected in Alaska and BC
- Data collected found to be accurate and examples of super-adiabatic conditions were found in proximity to wildfires.
- One fire documented going from unstable to super-adiabatic in 40 minutes and an associated increase in fire intensity.



Lapse Rate - complete

Conclusions:

- The data collected from the RJ85 was both accurate and timely. The aircraft provided accurate temperature profiles over a fire which could be used by fire managers if a data transmission system is set up.

Final Steps

- Report in editing stage.
- Provide Conair with report and circulate to fire agencies in Canada, the US and Australia where Conair airtankers are utilised.



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Thank you

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