

Forecasting an ice road opening on the North Slope

A North Slope operator trialed beadedcloud's Temperature Forecasting Tool (TFT-IR) on its ice road network to put a date on the question every winter program asks: when can we build?

The setup

- Tundra temperature sensors installed in the fall, before construction season, at planned route sites near the road network's western end.
- Twelve cellular data loggers transmitted sensor data from the tundra to the web four times a day.
- The forecast target: the date each site's ground reaches -5 °C at 30 cm depth, the Alaska DNR threshold for opening coastal tundra to ice road construction.
- Model inputs: the customer's own cable history and live readings, plus NOAA weather forecasts and ground coverage maps.

The results

Within 1 day

FORECAST ERROR, ONE WEEK OUT

8 days

ERROR WITHOUT ML, SAME LEAD

21 days

PERMIT AHEAD OF GENERAL OPENING

- Weekly ground temperature forecasts for the trial site, with forecast-vs-historical threshold dates for surrounding sites.
- Forecast precision increased as each site approached its threshold crossing.
- The operator obtained its tundra travel opening permit 21 days before the State of Alaska's general opening for the same area.

"We can forecast the date of reaching target ground temperatures to within 6-7 hours which aids with planning. We've been able to get out on tundra 1 to 1.5 months sooner by using temperature sensors for monitoring."

Federico Lier, Owner, Ninox Consulting and Civil Engineering

Operator name withheld in this public copy; project details available on request.

See TFT-IR on your route

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