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## Wildfires draw NASA's scrutiny

**Global warming research project.. Northern Saskatchewan's forest fires set to fire smoke and gases into stratosphere**

**MARGARET MUNRO, Canwest News Service**

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Scientists say the wildfires in northern Saskatchewan could go "pyro" this weekend, sending ash, smoke and gases soaring more than 10 kilometres up into Earth's upper atmosphere.

It is one of the more spectacular ways nature regenerates the northern boreal forest - and one with such far-ranging implications that NASA has two research planes and 120 scientists in Cold Lake, Alta., tracking the fires.

"It's the same as having a volcano go off," said Canadian fire expert Brian Stocks in describing the "pyro-convection" that could occur as early as today.



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A cool front moving in over the fires is setting up the kind of explosive conditions that can send smoke billowing into the stratosphere, which starts at about 10 kilometres.

Pyro-convection is also associated with "blow-out" fire conditions on the ground fuelling the fires and the speed they travel at, Stocks said. "Basically, the fire accelerates the convection and the convection accelerates the fire."

He is sympathetic to the northern communities that have been evacuated because of the fires, which have burned more than 4,000 square kilometres.

But the fires are giving researchers an unprecedented close-up look at boreal fires, which are expected to grow more common as the climate changes.

"We've been lucky, the most active fires in Canada are right next door," said atmospheric chemist Daniel Jacob of Harvard University, a lead scientist on the three-week NASA field campaign being run out of a hangar at the Canadian military base in Cold Lake.

There are about 120 scientists from around the world at the command post, two planes based in Cold Lake and a

third, a B-200 King Air, in Yellowknife.

This morning, dozens of the scientists will scramble onto the P-3B aircraft and DC-8 jetliner, that have been converted into flying laboratories. Teams on the ground will keep them posted on fire behaviour and the best smoke plumes to sample.

"There are dozens of fires we had to chose from," said Jim Crawford, an atmospheric scientist managing the project for the U.S. National Aeronautics and Space Administration.

Crawford said the planes don't fly into "the core" of rising fire plumes. "It's a little too turbulent and unsafe," he said.

They fly around the fires sampling clean air upwind and polluted air downwind. Then they fly through the smoke at various altitudes, charting changes in concentration and the "chemical evolution" of the hydrocarbons and other compounds thrown off by the fires. The planes are also equipped with lasers used to probe the smoke.

The fire emissions are also being tracked by satellite and instruments carried into the atmosphere by balloons released from a network of ground stations across the country, as part of the project, called ARCTAS, short for Arctic Research of the Composition of the Troposphere from Aircraft and Satellites.

Earlier this year, the planes criss-crossed the north from Alaska to Greenland sampling the pollution wafting in from Asia, Siberia, Europe and the North America and contributing to Arctic haze. The \$24-million, three-year mission is an international polar year project to better understand the impact fire and pollution have on the northern atmosphere and the changing climate system.

More residents left their homes in northern Saskatchewan as hundreds of firefighters battle the 65 forest fires burning in the province. Another busload of 160 evacuees from the northern community of Sandy Bay, about 580 kilometres northeast of Saskatoon, arrived in Saskatoon yesterday, bringing the total of displaced residents to almost 2,200.

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