Canada



## FUELLING THE FUTURE FROM ANCIENT **SANDSTONE:** OIL AND GAS POTENTIAL **BENEATH VOLCANIC ROCK IN B.C.**

Looking at layers of sandstone beneath thick volcanic rock may hold the key to finding future oil and gas reservoirs. Stratigraphic research - the study of rock layers - could point to new opportunities for exploration in the Nechako Basin, an area devastated by the mountain pine beetle.

In 2007 and 2008, Natural Resources Canada geologists, in partnership with the B.C. Ministry of Energy, Mines and Petroleum Resources and Geoscience BC, measured and sampled a series of rock layers over 1000 metres thick exposed along the southern end of the Nechako Basin. These rocks, called the Jackass Mountain Group, include sandstone and mudstone created by an ancient river delta system 100 million years ago. Results of the study show that some of the sandstone in the deltaic deposits are sufficiently porous to hold oil or gas.

> Until now, the remote location and thick cover of younger volcanic rock and glacial sediment masked and prevented detailed study of the deltaic deposits in the Nechako Basin. From data collected during this project, geologists now believe these deltaic rock layers extend northwards across the basin. Geologists use the exposed rocks in the south as a model to help define the characteristics of the hidden rocks in the north.





### MORE OPPORTUNITIES FOR DISCOVERY



The discovery of widespread deltaic rock layers suggests higher oil and gas potential in the Jackass Mountain Group than previously considered. By locating features of the hidden rock, the potential for successful exploration is also increased.

Stratigraphic research in the Nechako Basin, one of seven Geoscience projects funded by the Government of Canada through Natural Resources Canada's Mountain Pine Beetle Program, will help diversify communities impacted by the mountain pine beetle.

*Jurassic Period:* 200 million to 145 million years ago - dinosaurs live and the earliest birds and mammals develop.

*Cretaceous Period:* 145 to 65 million years ago - the first flowering plants appear and dinosaurs become extinct.

**Tertiary Period:** 65 million to 2 million years ago - modern flora, apes and other large mammals arrive.



MAPS AND DATA FROM THIS RESEARCH ARE AVAILABLE FREE TO ANYONE INTERESTED, SUCH AS COMMUNITIES AND FIRST NATIONS MAKING LAND-USE DECISIONS, OR NDUSTRY WANTING TO LOWER EXPLORATION RISKS AND COSTS.

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For free data from this study, as well as other Mountain Pine Beetle geoscience data, visit **gdr.nrcan.gc.ca.** 

#### For more information on Natural Resources Canada's Mountain Pine Beetle Program visit **forest.forward.nrcan.gc.ca**

Natural Resources Canada's stratigraphic research, funded through the Mountain Pine Beetle Program, complements other public geoscience work in the region by the British Columbia Ministry of Energy, Mines and Petroleum Resources and by Geoscience BC.

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Nechako Basin Geology Map (top) courtesy of BC Ministry, Oil and Gas Division, Resource Development and Geoscience Branch.

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moving beyond the pine beetle