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Airborne Gas Flux Mapping for Frontier Exploration

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SUMMARY

The deployment of LightTouch in Tunisia in 2008 will be described and sample data and results presented. The principles of operation will be described as well as the ways in which the findings can support exploration in a frontier setting.

LightTouch is a Shell-proprietary method for remotely detecting, locating and quantifying fluxes of light hydrocarbons from ground-level sources. The primary goal of the method is to detect hydrocarbon systems and provide information on the extent of emissions, which in combination with other data, may help identify the location and extent of the system and related accumulations. The method operates by combining high precision ultrasensitive gas concentration measurements at numerous locations and times with relevant atmospheric data. These data are then used in combination with an understanding of the gas dispersion process to infer the distribution and magnitude of ground level fluxes that best explain the full data set. The method is now operational from aircraft and is capable of rapidly screening very large areas in parallel with gravity and magnetic surveys, which can be operated simultaneously from the same aircraft.