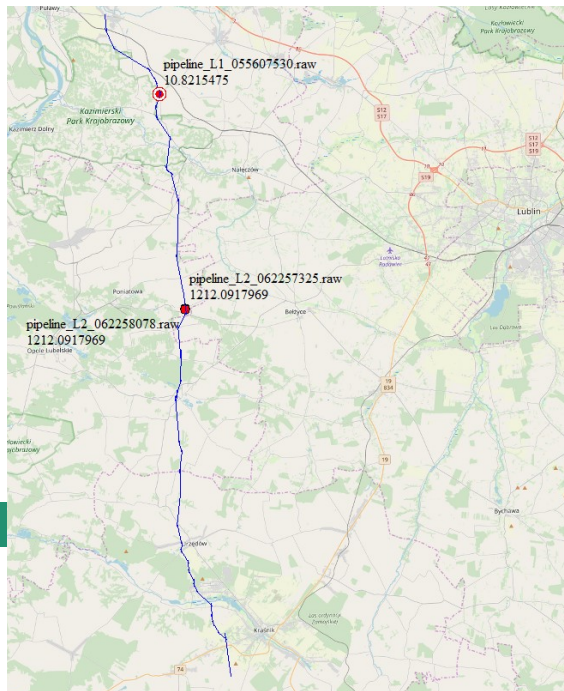


AIRBORNE PIPELINE GAS LEAKAGE DETECTION

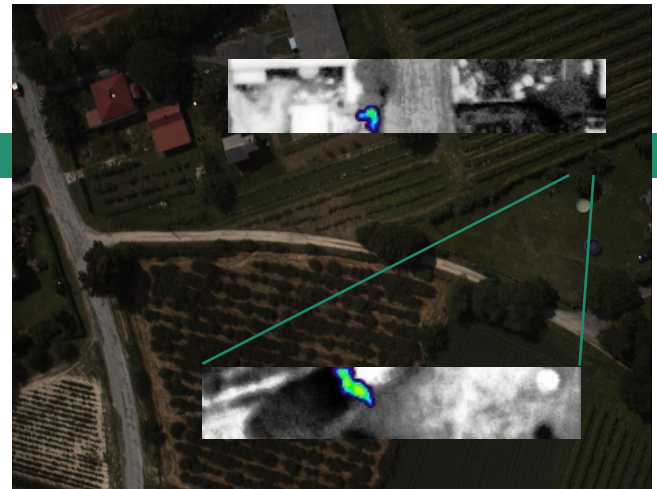
Lublin, Poland

In July Dimap, GAZ-SYSTEM S.A., a gas transmission operator, and AGH University of Science and Technology Faculty of Drilling, Oil and Gas in Krakow performed a flight mission near Lublin to verify airborne gas leak detection. GAZ-SYSTEM's key task is the transport of gas via the transmission network throughout the country to supply gas to the distribution networks and final customers. The total system has a length of 11,059 km with 903 gas stations and 14 compressor stations. Hyperspectral sensors installed on an Mi-2 helicopter were flown over a controlled leak and over an 80km pipeline.

Installation and calibration was performed on one day, and the flight mission for the pipeline segment of 80km was performed with mobilization and demobilization within two hours at an altitude of 250m at a speed of 80 knots. The data was processed nearly online and was available within hours after flying commenced.



Over the course of the pipeline one controlled reference leakage was utilized to check the sensor performance and one further unknown leakage was identified and mapped shown in the picture below. While the pipeline corridor is visible from the air, the pipeline itself mainly routed through an agricultural area covered with soil and vegetation the leakages were clearly recorded.



Deliverables to Client

- The detection results as concentration map with coordinates of the data cubes with positive identification and estimated concentration values.
- Orthophotos of the flight corridor for reporting of the integrity of the pipeline corridor, highlighting possible encroachment by agricultural and other users.
- All data were provided ready for GIS and CAD systems and with XML files for long term reporting.

Dimap's method of gas leak detection utilizes airborne thermal hyperspectral sensors using a Fourier-Transform-Spectrometer in the thermal range to identify the location of methane absorptions and providing an estimated concentration map to improve pipeline safety, efficiency, and compliance for a price of approximately \$60 to \$80 USD/KM.

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