
To: Meghan McDonald – New Mexico AML

From: Max Johnson P.E. - Tetra Tech
Jeff Nuttall P.G. - Tetra Tech
Walt Kuhn P.E. – Tetra Tech

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Subject: Navajo Mine Fire Update November 4, 2021

On November 4, 2021, Tetra Tech performed a unmanned aerial system (UAS) thermal and visual photogrammetry flight of the Navajo Mine fire to monitor fire surface activity and check southern end of fire for extents of activity. Tetra Tech acquired an upgraded UAS and high resolution thermal camera which allows for the creation of 2D thermal maps.

The November 4, 2021 visual flight was compared to the flight performed on November 19, 2019. Results from this comparison show that the fire is moving north and west into the hillside. At the north end of the fire, new fractures have formed three feet northwest of the futherest northwest fracture from the 2019 flight. Near the south end of the flight, a new fracture has developed four feet to the west of the western most fracture from the 2019 flight. Most previously identified fractures have widened. A juniper tree at the southern end of the fire expression has appears to have died as it has lost its needles. There is still evidence of coal oxidation south of the fire area but there no indication of heat. The thermal imagery does show some heat in a sandstone outcrop southwest of the fire, but this is consistent with residual solar heat from the previous day. Fire surface temperatures appear consistent with previous measurements.

Orthomosaic visual and thermal imagery are provided electronically with this document. Maps from data captured on November 4, 2021 are not georeferenced and should not be used for construction.

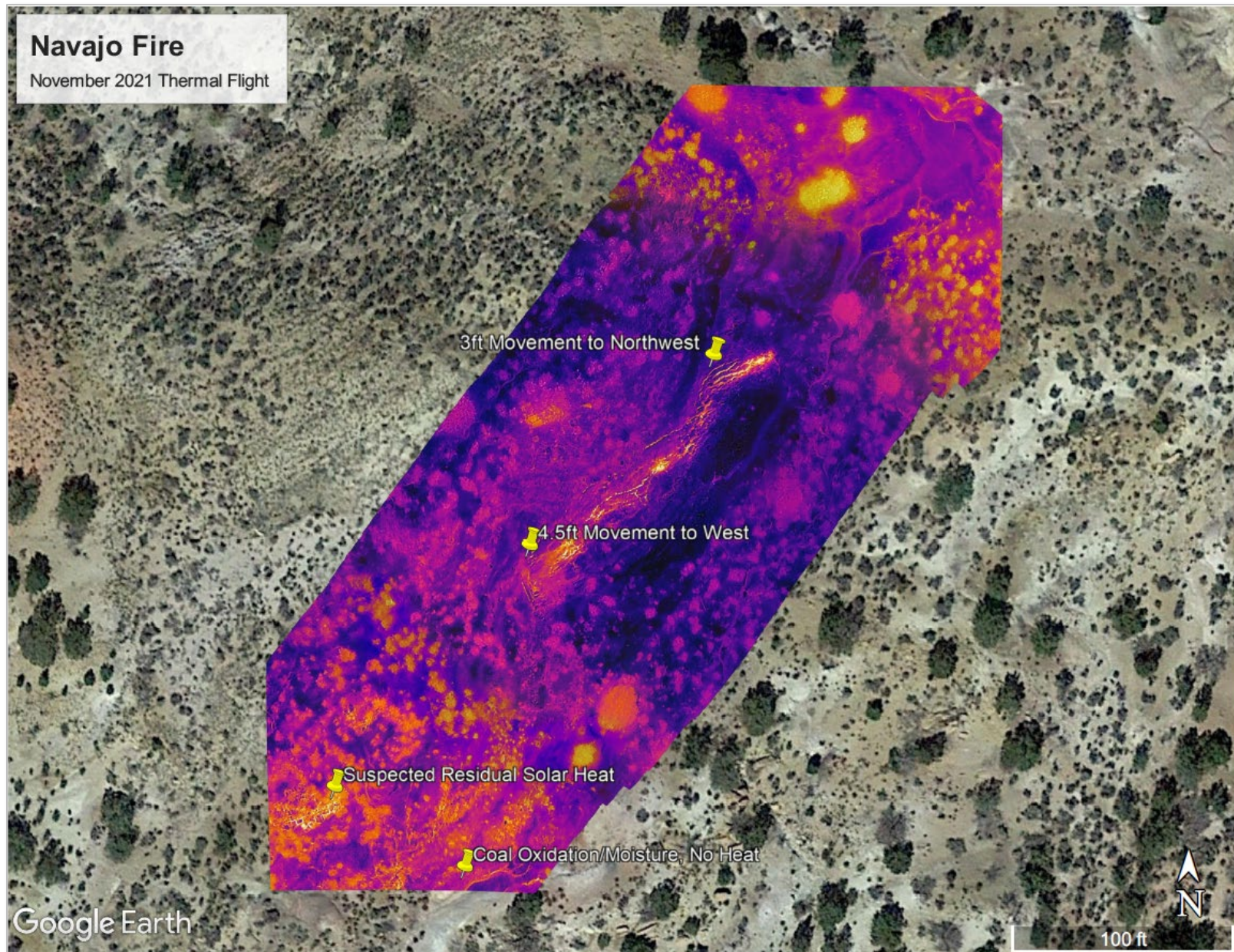


Figure 1. Overview of Thermal map created from data collected 11/4/2021

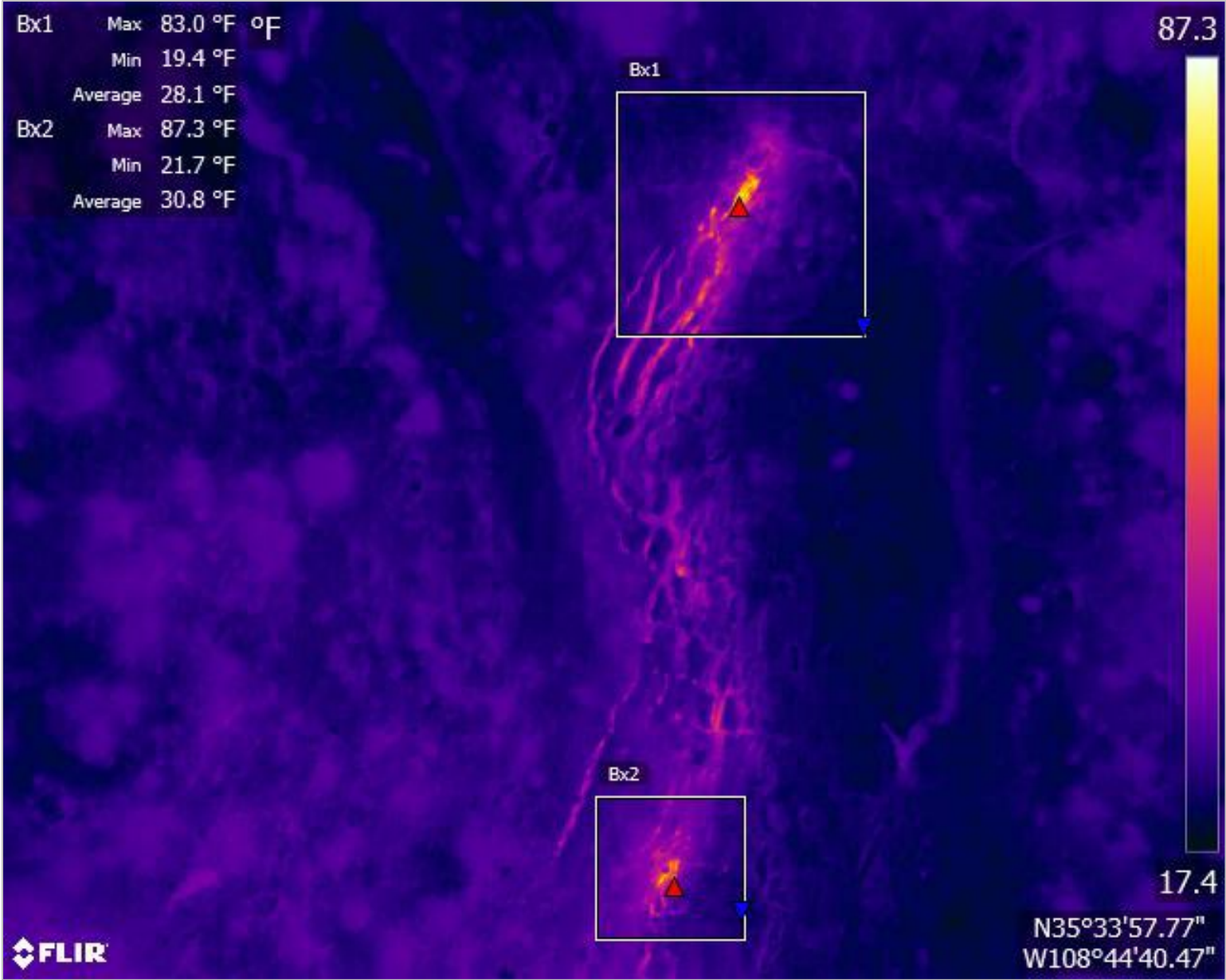


Photo 1 – North Area of Fire Expression

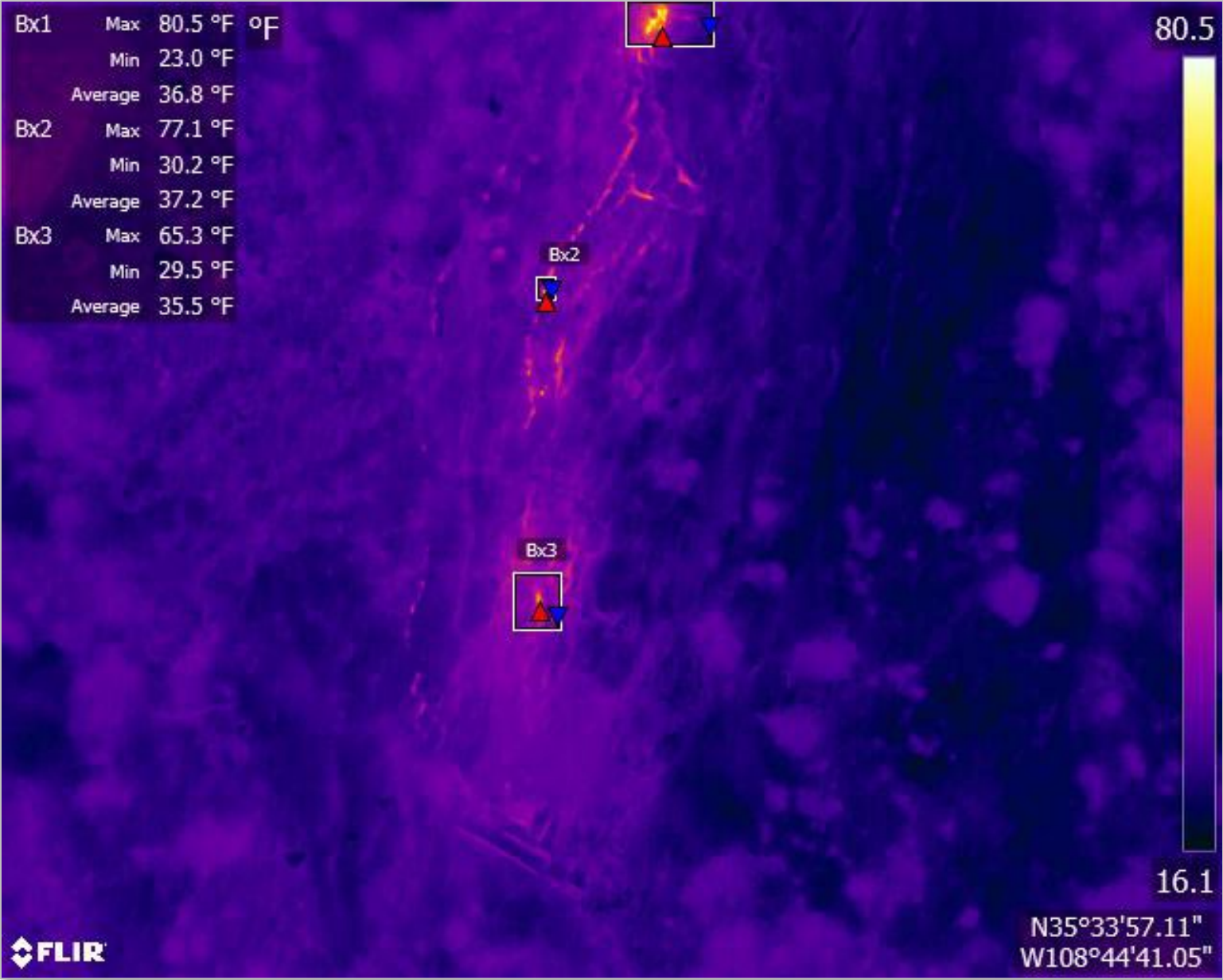


Photo 2 – Southern Area of Fire Expression

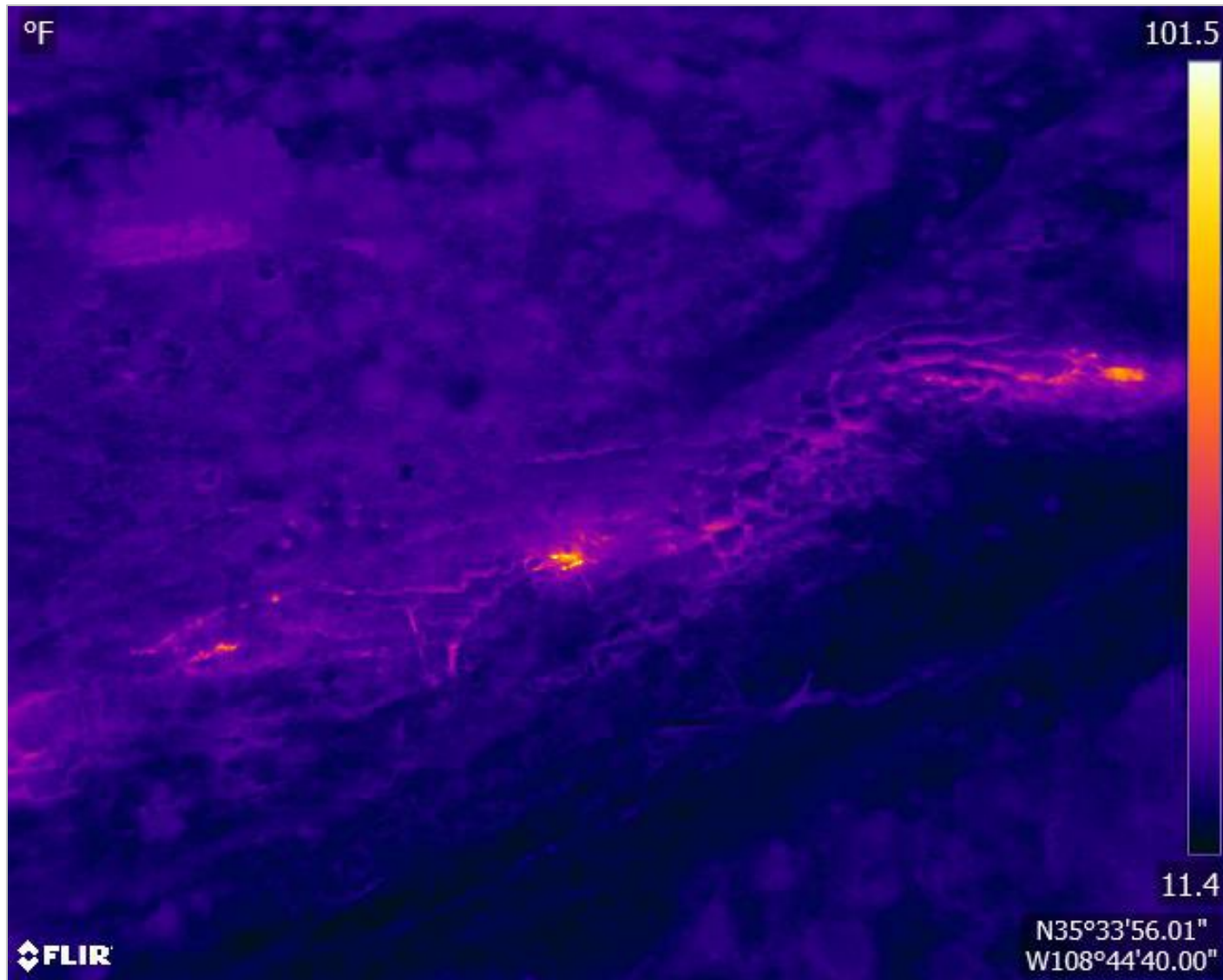


Photo 3 – Perspective View of North Fire Expression

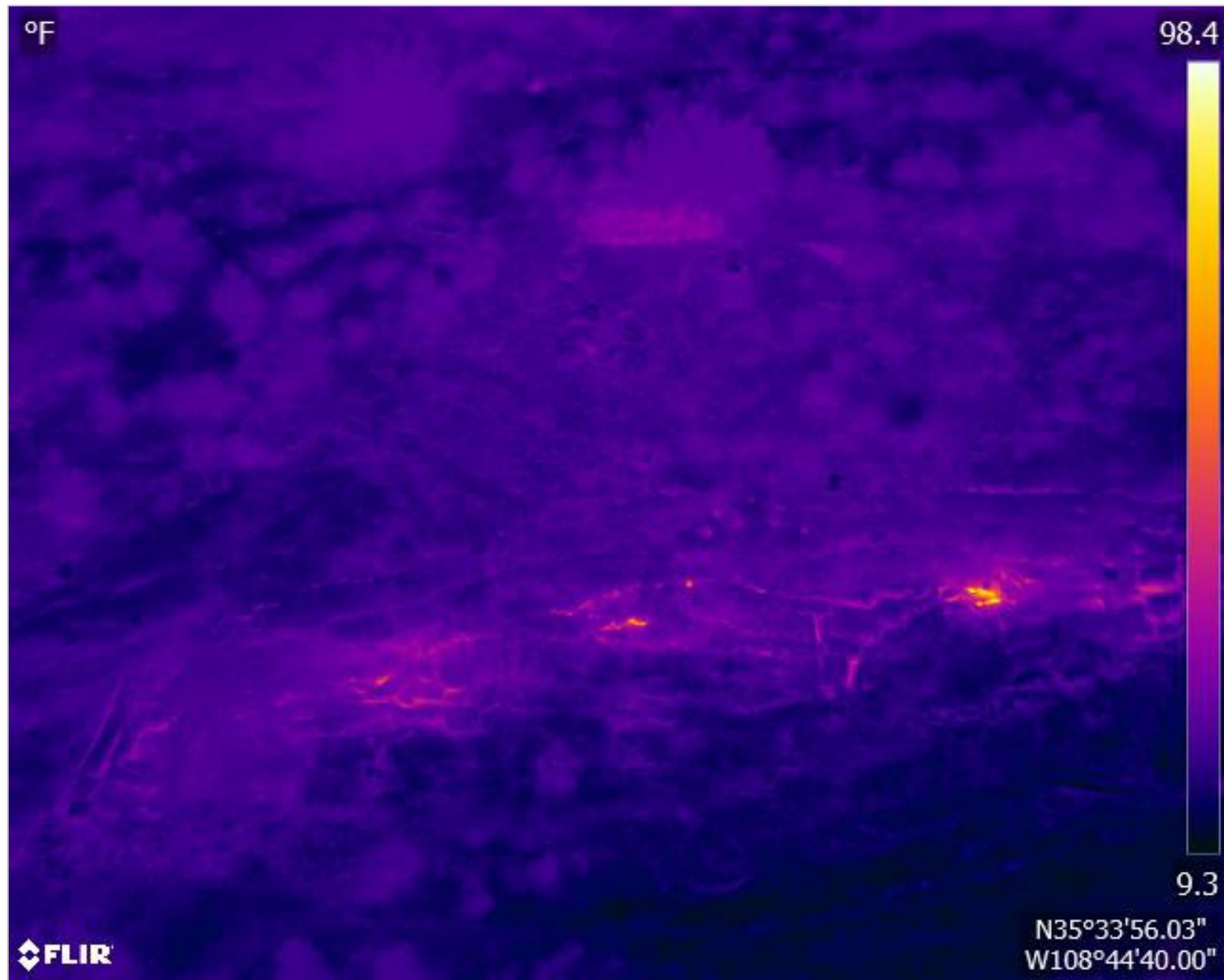


Photo 4 – Perspective View of South Fire Expression

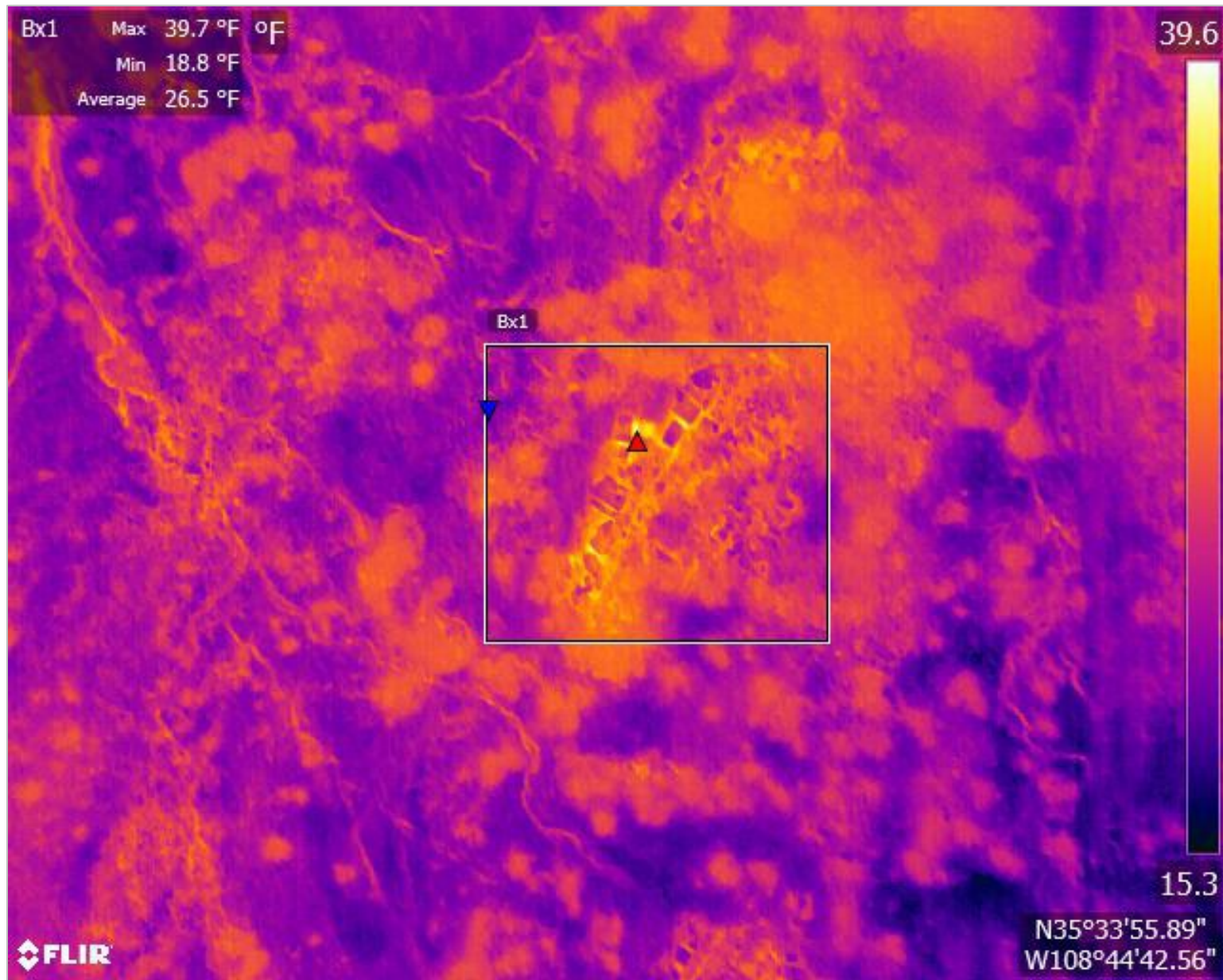


Photo 5 – Suspected Solar Heating on Sandstone Outcrop Southwest of Fire