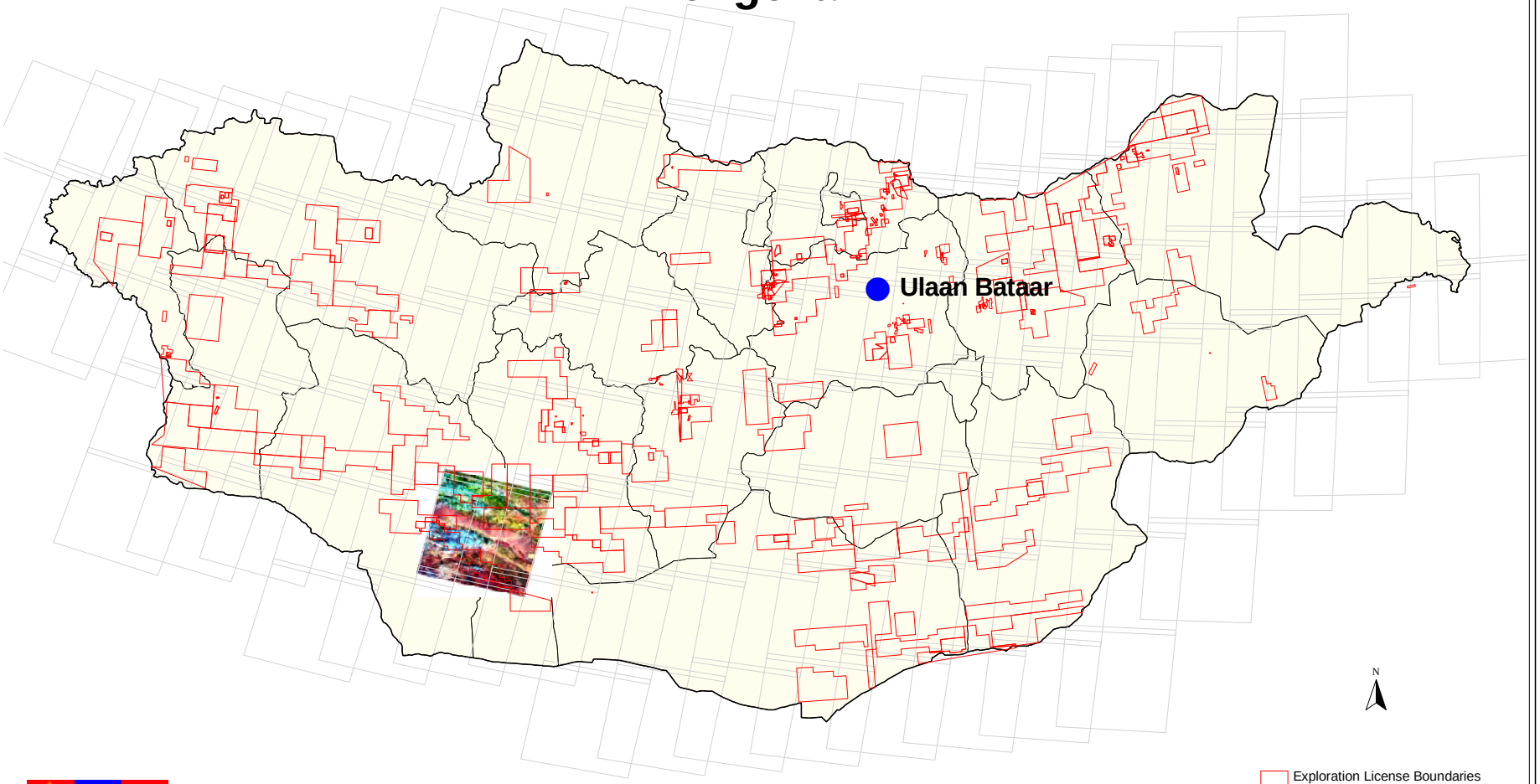
Mineral Exploration with Hyperspectral Imagery

Mongolia



One of ~85 Landsat TM images investigated as a part of Stage 1 exploration.

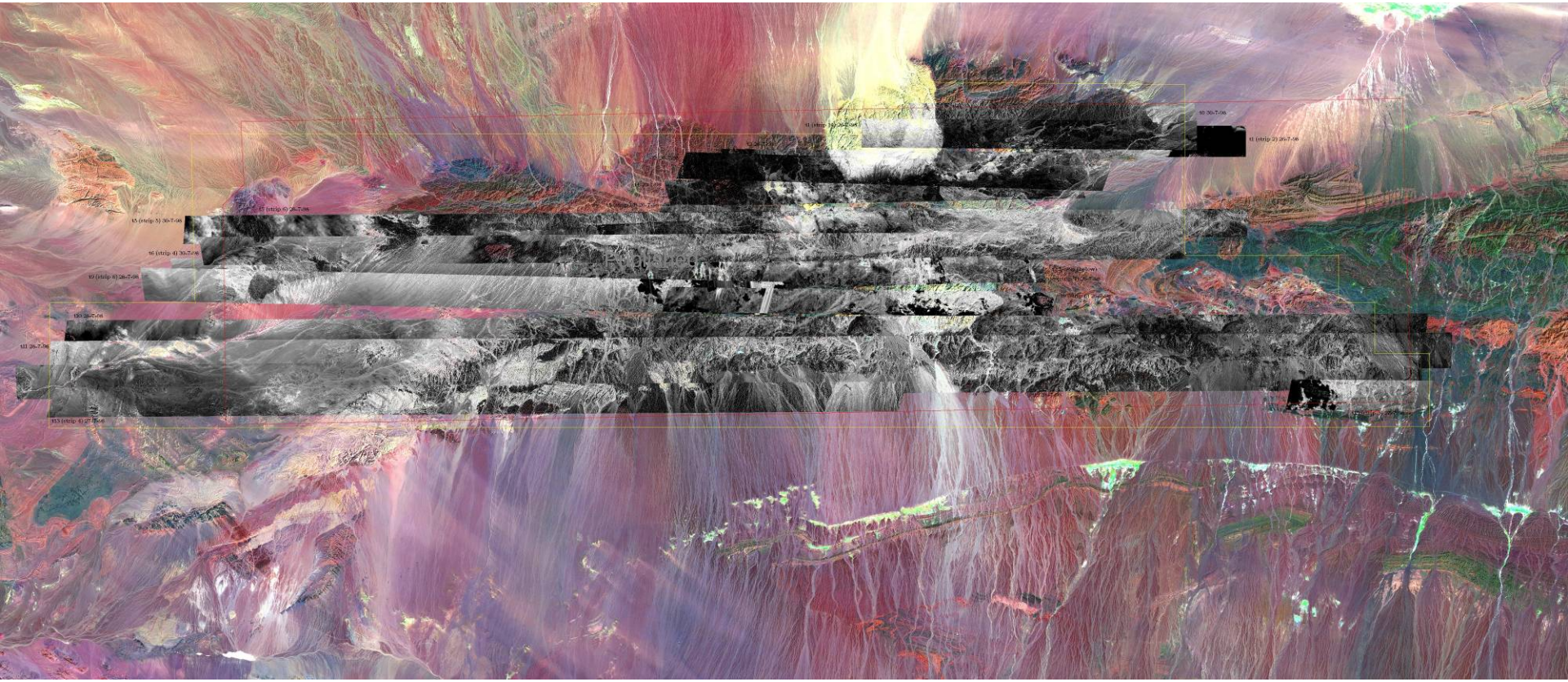
Field Area - unvegetated, dry, browns & reds

Field Camp

HyVista Airborne Hyperspectral Sensor

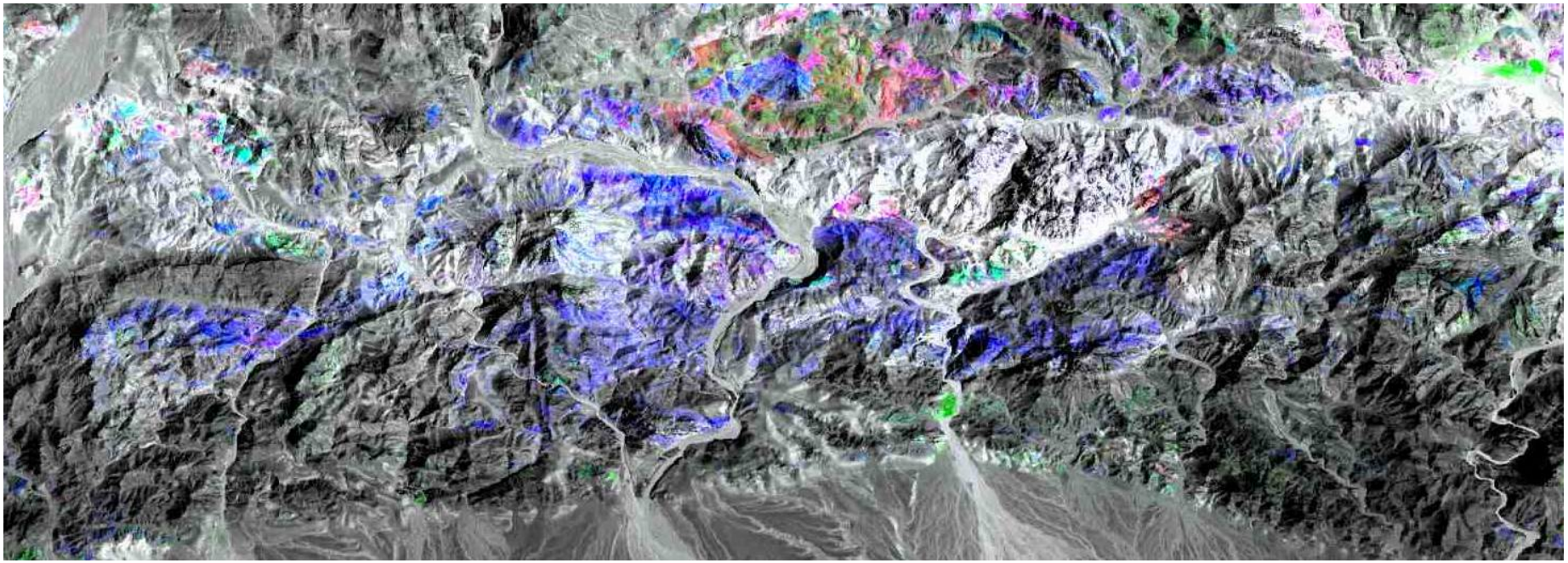
Published

Airborne Hyperspectral Flight Strips on Landsat TM Satellite Image, Mongolia



Flight Strips 2.5 m wide. VNIR-SWIR (128 bands) data collected

Hyperspectral Data Enhanced for Geology



A representative section of an airborne hyperspectral flight strip.
Colors relate to distribution of key minerals important for exploration.

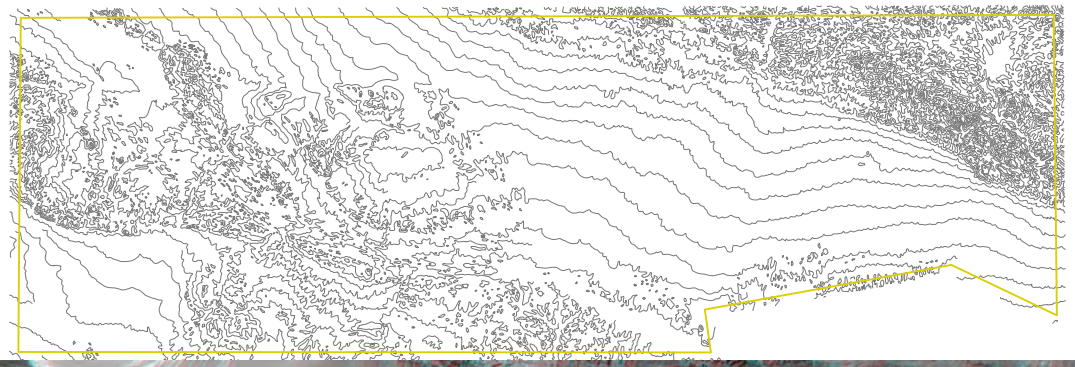
Data acquired in a Cessna 404 flying ~3000m above the ground,
Flight strip 2.5 km across with 5 m pixels

Hyperspectral Imagery Exceptional for
Geologic Mapping due to Arid Conditions

Published

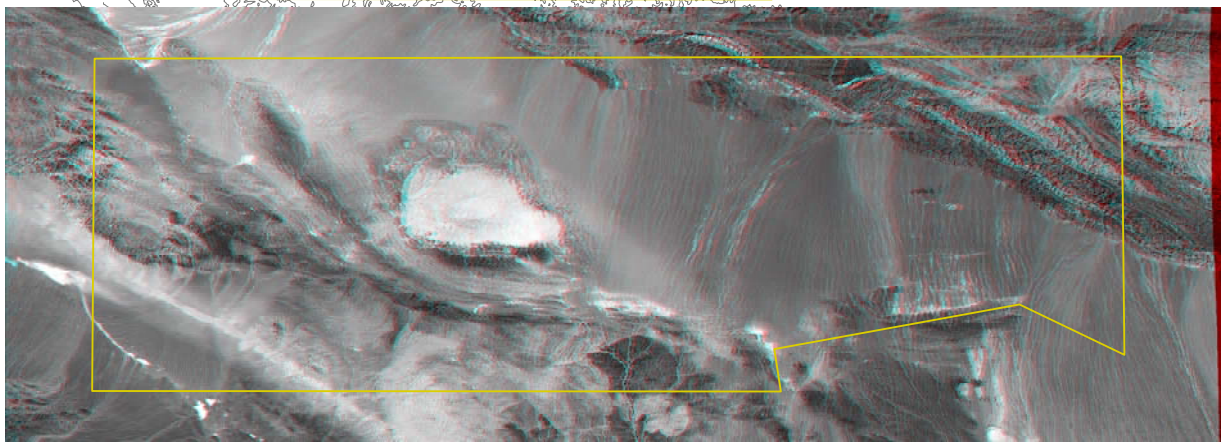
DEM Used to Develop Anaglyph Stereo Models

(1)



License Area
Topographic Map

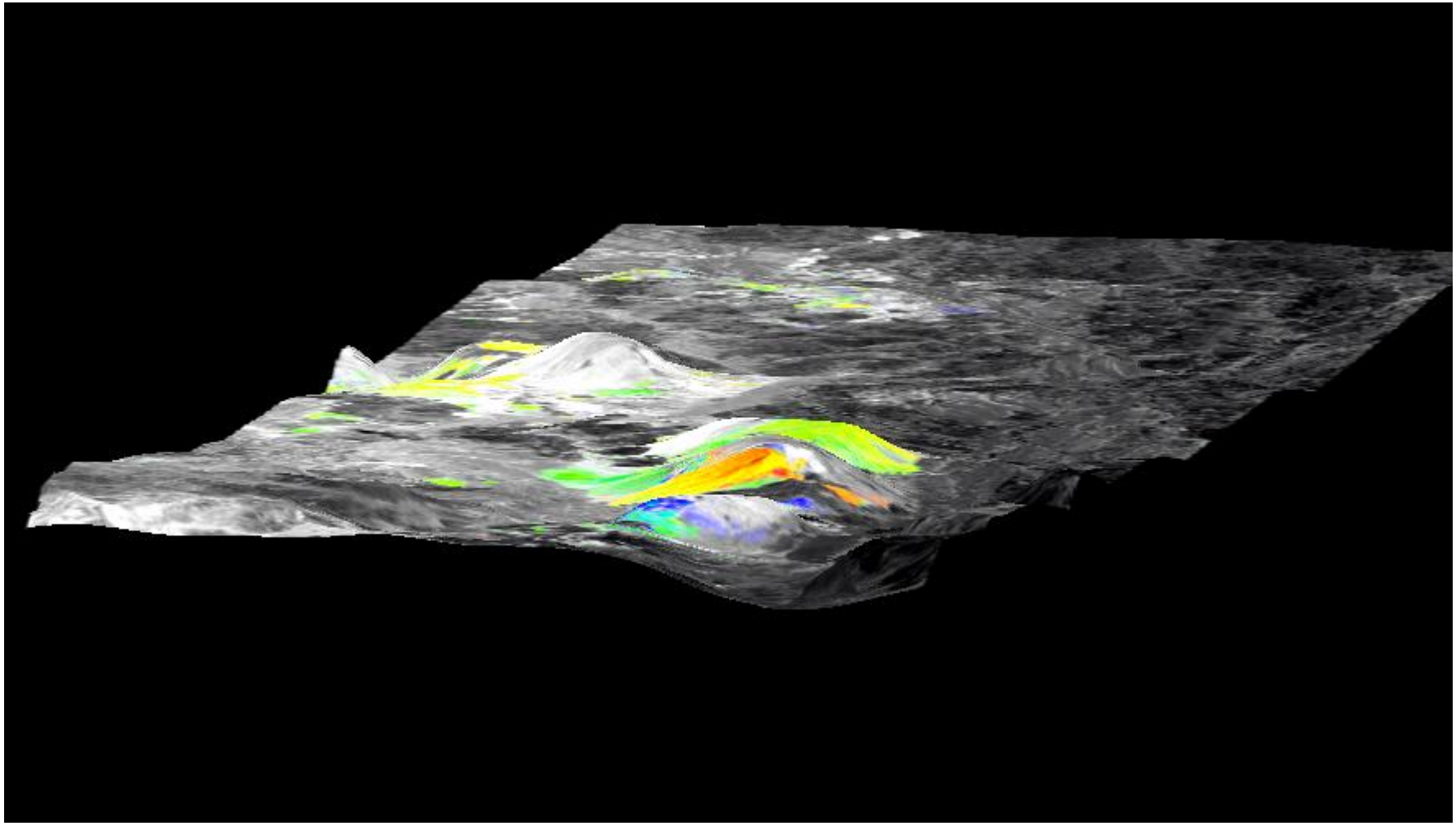
(2)



License area with digitized topographic map (1), converted to a DEM and draped with the Landsat TM (2) to provide stereo topographic and 3-D structural evaluation capabilities.

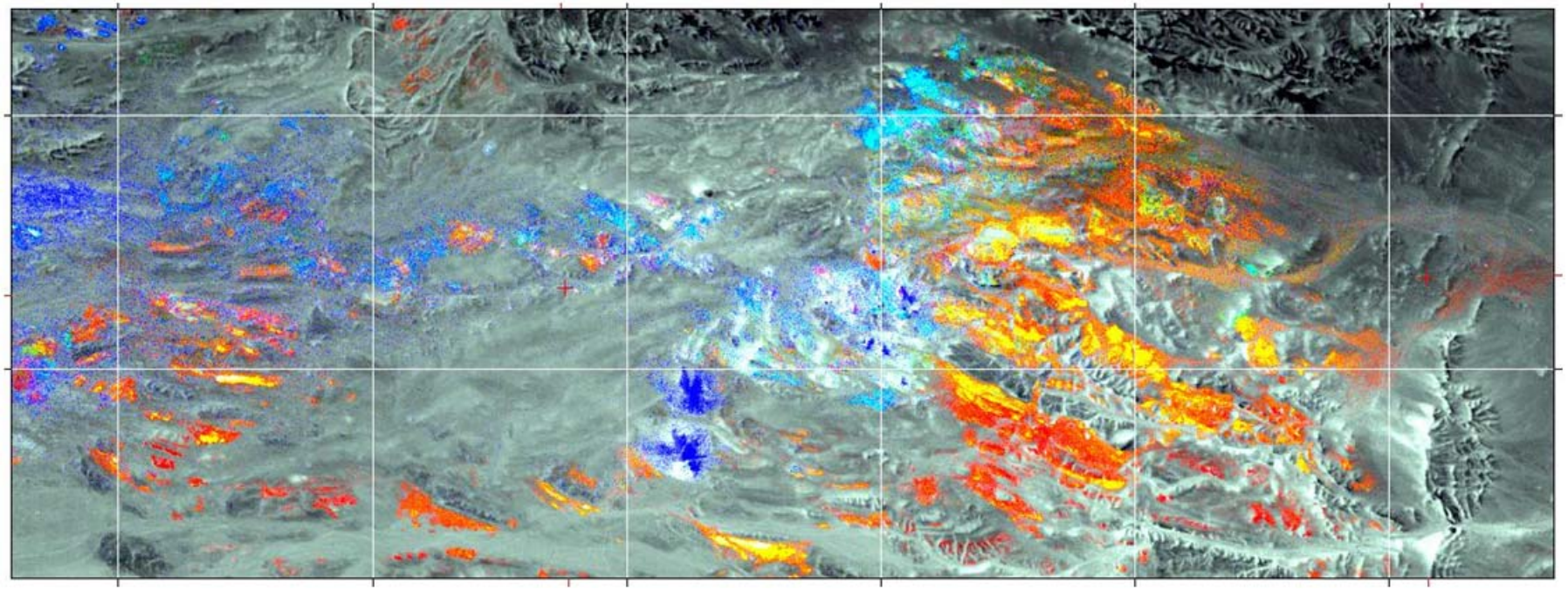
Enable Stereo Viewing to Improve Understanding of Structure and Stratigraphy

Drape Geology & Target Maps on DEM



Enable Perspective Viewing
and Improved Understanding

Hyperspectral Map of Some Mineral Characteristics



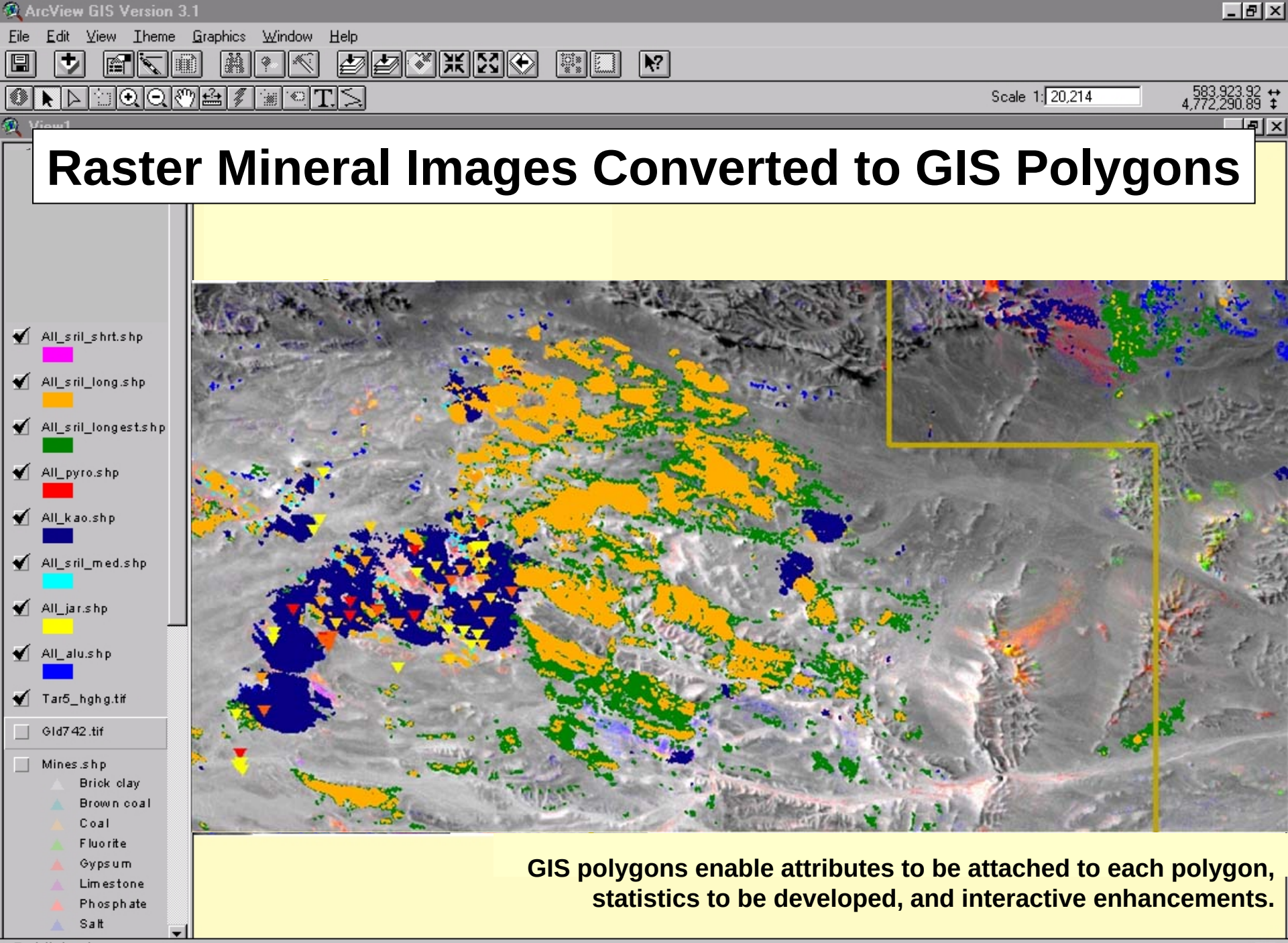
HyMap Data, 5-meter resolution
Acquired July 27, 1998
Processed Sept. 22, 1998

0 0.5 1 Kilometers

Sericite/Illite (short)
Sericite/Illite (medium)
Sericite/Illite (long)

Relative abundance of mineral occurrence is depicted by color intensity. Colors other than red, green, and blue suggest mixed occurrence.

Raster Mineral Images Converted to GIS Polygons



GIS polygons enable attributes to be attached to each polygon, statistics to be developed, and interactive enhancements.