# ASSESSMENT REPORT ON
# ASTER IMAGE ANALYSIS

## TASCO MINERAL PROPERTY
## TASEKO LAKES, BC, CANADA

## CLAIM TENURES:
## 507495, 507507, 535272, 548848, 548849 and 548850

**CLINTON MINING DIVISION**
**MAP SHEETS: NTS 092O.003, NTS 092O.004**
**NTS 092O.093, NTS 092O.094**
**LATITUDE N 51$^{o}$ 03', LONGITUDE W 123$^{o}$ 23'**


| | |
|---|---|
| **RECORDED OWNERS:** | **GERALD CARLSON & JOHN CHAPMAN** |
| **OPERATOR:** | **SAME** |
| **AUTHORS:** | **JOHN A. CHAPMAN, P.ENG.** |
| | **DAVID K. MAKPEACE, P.ENG.** |
| | **WARD E. KILBY, P.GEO. (APPENDIX A)** |
| **DATE:** | **JANUARY 27, 2007** |

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# 1 Summary

The Tasco property is a 6,383 hectare mineral tenure located approximately 200 kilometers north of Vancouver, British Columbia. The registered owners of the property are Gerald G. Carlson and John A. Chapman. It is strategically located in highly prospective ground with a partially defined copper-molybdenum porphyry deposit (Copper Zone) at its core. Exploration programs in the past have identified numerous anomalous zones which require further exploration work to identify their source(s).

The Copper Zone prospect is a porphyry-type copper-molybdenum deposit with a large surficial gossan zone. It lies within the Coast Plutonic Complex, locally composed of quartz-hornblende diorite. The deposit has been intersected by 8 core and 4 percussion drill holes. The deepest drill hole (304 meters) was mineralized over its entire length with copper and molybdenum. The deposit requires both in-fill and perimeter drilling to properly define its mineral potential.

In addition, the presence of soil geochemical anomalies, under-explored gossan zones and under-explored showings suggests the potential to find additional mineralized zones on the Tasco property including not only copper and molybdenum but also gold.

Recent 2006 Aster image analysis over, and around, the Tasco property by Ward E. Kilby, Cal Data Ltd. (see Appendix A) has identified geologically significant features. Two significant spectral features were identified, a major northwest trending linear structure the length of the claims and beyond and a large oval alteration pattern associated with the known Copper Zone occurrence.

A success-contingent, two-stage exploration program is required to properly define the presently known deposit, to adequately explore the other known targets and potential new mineral discoveries on the property. Phase I of the program would cost approximately $Cdn 585,000, before contingencies. This program would include:

- Reconnaissance mapping and prospecting of the land package,
- A pole-dipole induced polarization (IP) geophysical survey of 22 line-kilometers centered on hole 81-2 (deepest continuous mineralization of any hole) combined with a ground magnetometer survey on the same grid,
- Extension of the wide-spaced soil geochemical survey over the original 1990 soil grid to fully define all previous anomalies,
- Reconnaissance soil geochemical surveys over the rest of the property to test for new mineralized zones,
- Detailed (close-spaced) soil geochemical surveys of the known mineralized zones,
- Survey of all data into a digital database using GPS UTM NAD83 coordinates,
- A preliminary diamond drilling program to test the central core of the Copper Zone. This drilling can be carried out independent of the IP survey.

The scope of Phase II of the program will be contingent on the results of Phase I. The program would include continued definition drilling of the Copper Zone deposit. It could also include initial drilling of other targets defined in the Phase I program.

# 2 Introduction

## *2.1 General*

The Tasco property is located in the Clinton Mining Division of British Columbia. It is considered a porphyry-type deposit containing anomalous values of copper, molybdenum and gold and tungsten. There are several known porphyry style mineral occurrences on and near the Tasco property (see Figure 3-3).

David Makepeace visited the property on July 4, 2006 accompanied by Gerald G. Carlson (co-owner of the property). Snow still covered a large portion of the Copper Zone showing. John Chapman (co-owner of the property) visited the property on September 7, 2006. Both visits were supported by helicopter so that the property could be viewed from the air and landings made in key areas of past drilling to view the targets at and near hole collars.

## *2.1 Reliance on Other Experts*

The authors have compiled this report with all due care and reviewed all available reports. It is believed that the information contained within this report is accurate and reliable. All previous work programs on the property have been undertaken by experienced exploration personnel and the referenced reports cited were written by qualified professionals.

# 3 Property Description

## *3.1 Location*

The Tasco property is located 150 kilometers southwest of Williams Lake, British Columbia and 200 kilometers north of Vancouver as seen in Figure 3-1. The property is in the Clinton Mining Division, within map sheets 092O.003, 092O.004, 092O.093 and 092O.094. The coordinates of the center of the claim block are approximately 473,917 mE and 5,655,704 mN (UTM NAD83) or 51° 03’ N latitude and 123° 23’ W longitude.

## *3.2 Claims*

The Tasco property is comprised of six Mineral Titles Online (MTO) mineral claim blocks, which total 6,383 hectares. The claims are owned jointly by Gerald G. Carlson (50 % - held on behalf of KGE Management Ltd.) and John A. Chapman (50 %). The claim statistics are listed in Table 3-1 and are illustrated in Figure 3-2. Note that some of the claims shown on 2006 maps in this Report have been amalgamated as of January 7, 2007.

***Table 3-1. Tasco Property Claims***

| Tenure No. | Claim Type | Ha | Expiry Date | Amalgamated From (January 7, 2007) |
|---|---|---|---|---|
| 507495 | MTO mineral claim | 1,320.283 | January 10, 2008 | |
| 507507 | MTO mineral claim | 1,341.224 | January 10, 2008 | |
| 535272 | MTO mineral claim | 284.581 | January 10, 2008 | |
| 548848 | MTO mineral claim | 996.284 | October 2, 2007 | 542327, 542326 |
| 548849 | MTO mineral claim | 935.324 | October 2, 2007 | 542325, 542323 |
| 548850 | MTO mineral claim | 1505.029 | October 2, 2007 | 542328, 542324, 542322 |
| | | 6,382.725 | | |

## *3.3 Accessibility*

Road access to the property is obtained by traveling 80 kilometers west of Williams Lake on paved provincial highway 20 to Hanceville. A 170 kilometer gravel four-wheel drive road leads southwest from Hanceville past the east side of Taseko Lakes. At the south-end of the lakes the road parallels the Taseko River to the east to the Granite Creek road. The Granite Creek road leads south and ends as a series of drill roads in the center of the Tasco property at an elevation of approximately 2,440 meters. Travel time from Vancouver is approximately 13 to 14 hours. During the site visits, the Granite Creek road had no bridges at river and stream crossings. The water level of all creeks was low enough to ford each crossing except possibly the Taseko River.

Helicopter service is available from Williams Lake, Pemberton (approximately 1 hour) or Gold Bridge.

## *3.4 Physiography, Vegetation and Climate*

The property is situated in the alpine regions of the coast mountain ranges and exhibits typical U-shaped valleys and ragged ridge-lines. The elevation ranges from 1720 meters on Granite Creek to 2,700 meters at the highest peaks on the east side of the property. The relief is steep to rugged except in the Granite Creek valley floor.

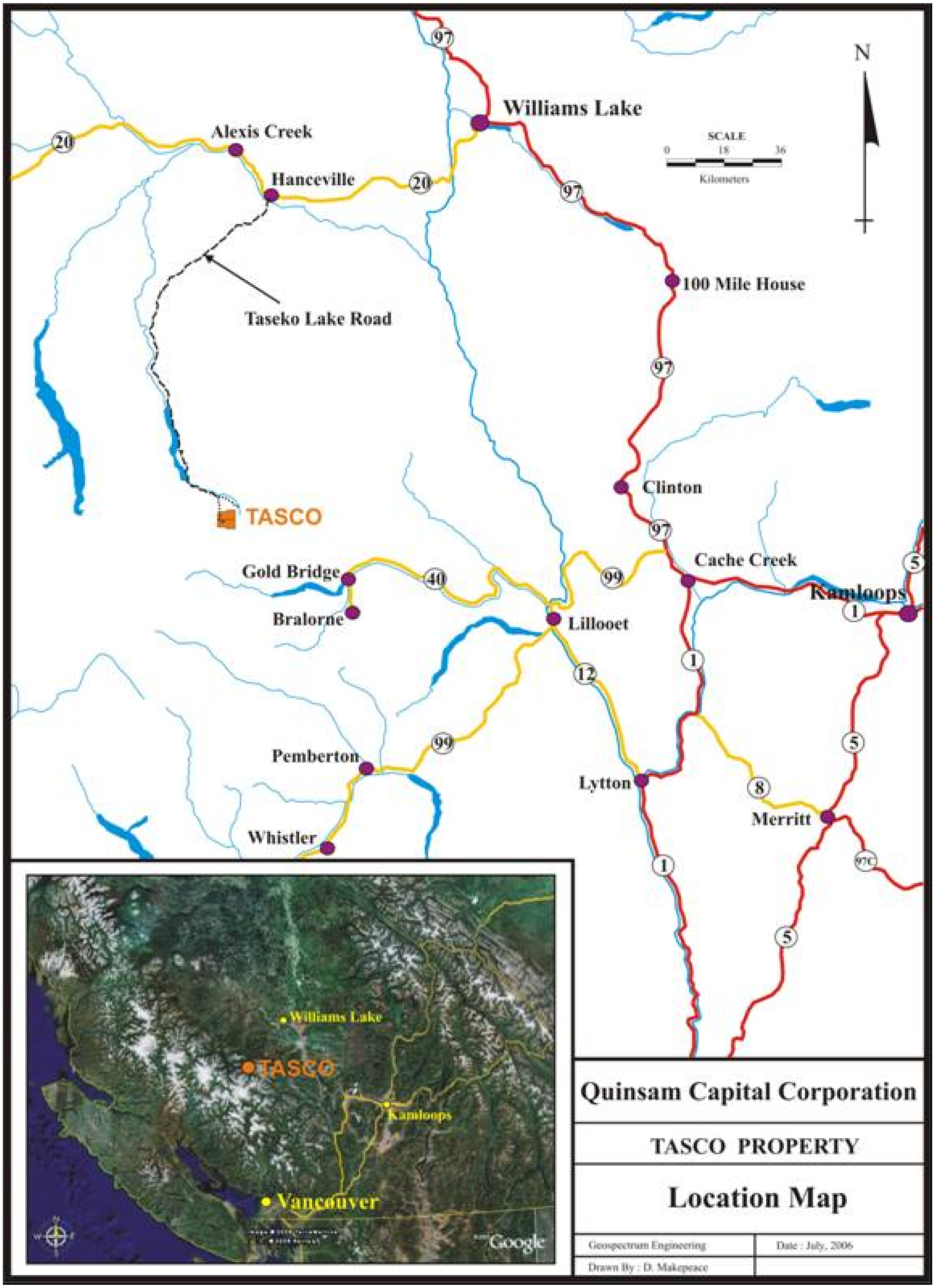


**Figure 3-1. Location Map**

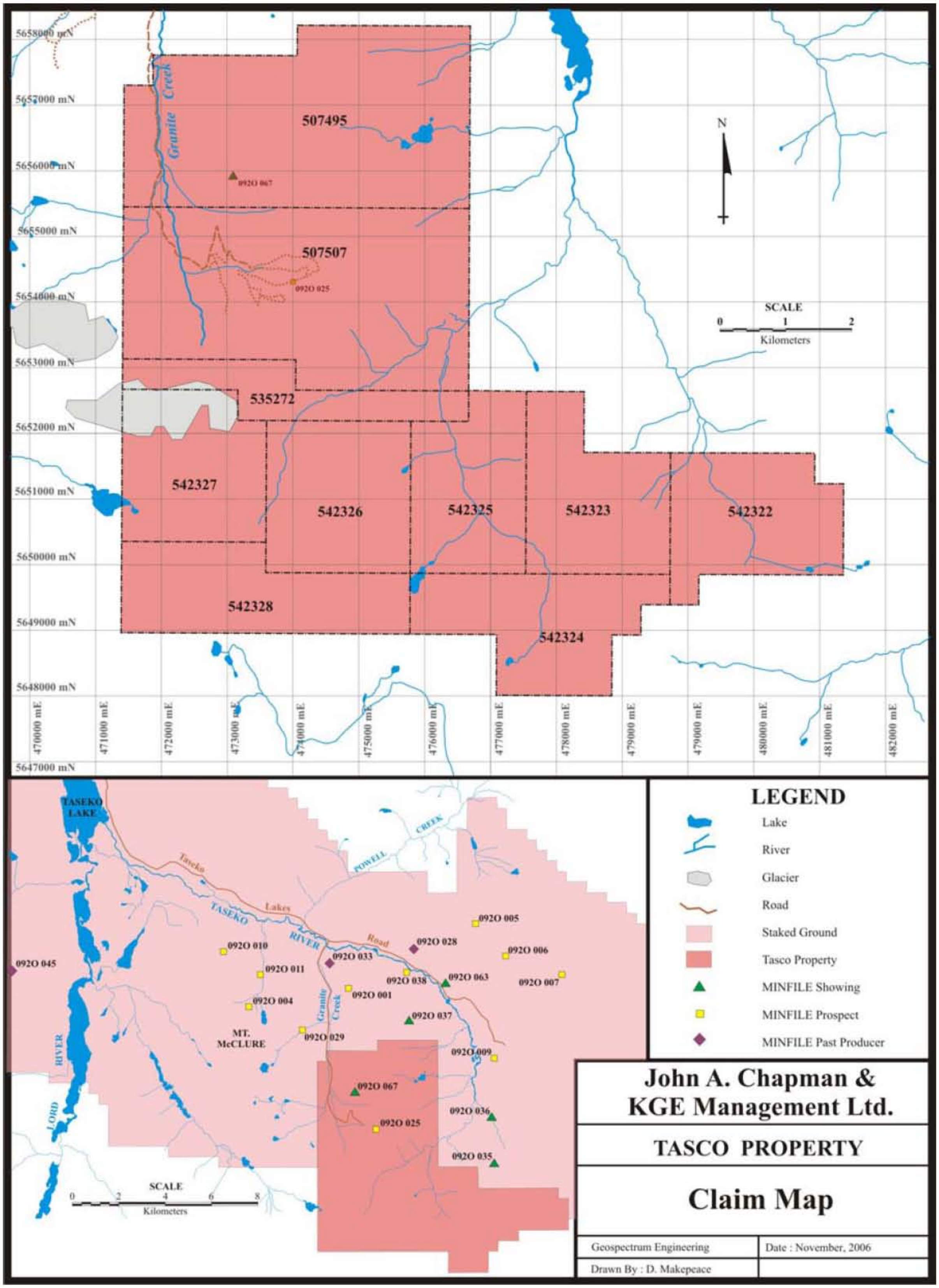


**Figure 3-2. Tasco Property Claim Map**

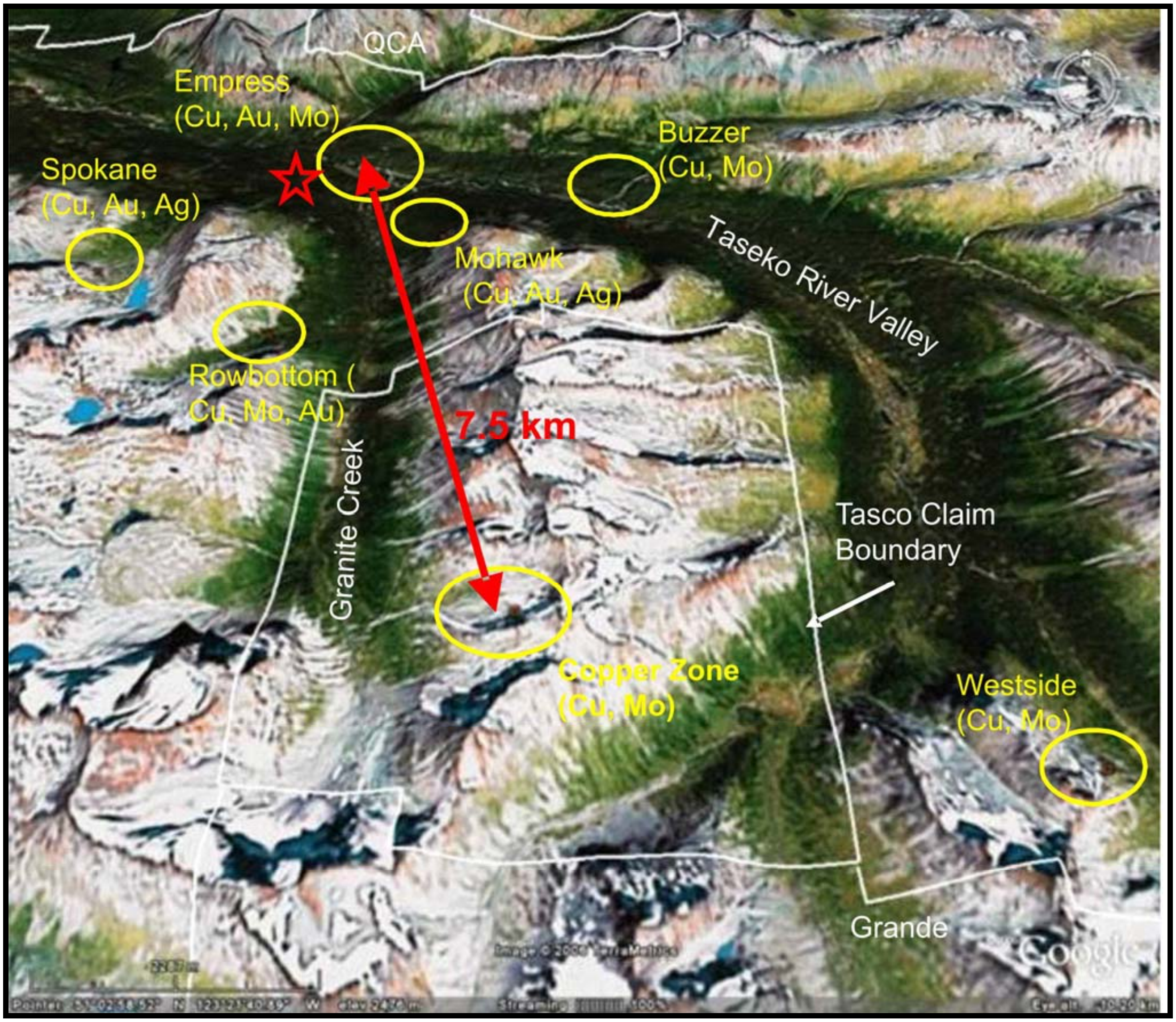


**Figure 3-3. Google Earth Map of Local Porphyry Style Mineral Occurrences**

**Photo 3-1. Looking east toward the Copper Zone, notice the drill roads climbing the scree slopes**

Vegetation consists of Lodgepole Pine Engelmann Spruce and Whitebark Pine in the Granite Creek valley with subalpine fir, Common Juniper, Soapberry, Kinnikinnick, Lichen and various grasses at higher elevations (Valentine, 1983).

The climate is cold in winter and hot in the summer with limited precipitation and often high wind conditions. Work season is normally mid June to late September. The Atmospheric Environment Service climate stations in the area (Dog Creek) record a mean annual temperature of 4.0 °C, a mean annual total precipitation of 39 cm and a mean snowfall of 180 cm. (Valentine et al, 1987).

## *3.5 Infrastructure*

A series of gravel, four-wheel drive roads (Taseko Lakes Road) allows access to the property. A network of drill roads provides additional access to the central part of the property. The valley floor provides the only flat area on the property.

The nearest settlement is a series of hunting/fishing lodges on and near Taseko Lake. The Taseko Lake Lodge owned by Taseko Lake Outfitters (www.tasekolake.com) provides the closest accommodation for the Tasco project. The area is relatively isolated with little infrastructure at present. The old airstrip on the north side of the confluence of Granite Creek and the Taseko River is over grown as shown in Photo 3-2.

**Photo 3-2. Old Taseko River airstrip, looking west toward Taseko Lakes**

# 4 Geological Setting

## *4.1 Regional Geology*

The region is underlain by Middle Jurassic (~160 Ma) to Upper Cretaceous (~110 Ma) marine and non-marine coarse clastic sediments and interfingering of volcanic rocks that collected in a successor basin called the Tyaughton-Methow Trough (McLaren et al, 1989). During the Late Cretaceous (~70 Ma) uplifting of the area, a number of significant northwest-trending strike-slip and compressional faults occurred. Intrusive rocks of the Coast Plutonic Complex of Jurassic to Eocene age were emplaced in the south and southwest portions of the region. See Figure 4-2.

The Tasco property is located within the Coast Plutonic Complex, (approximately 7 kilometers) from its contact with the Late Cretaceous sedimentary units of the Tyaughton-Methow Trough (Figure 4-2). The intrusive belt consists of quartz diorite to granodiorite which have been subsequently cross-cut by a series of quartz-rich or felsic porphyritic stocks and dykes. The Tyaughton-Methow Trough units closest to the property are part of the Upper Cretaceous age Powell Creek Formation and the Lower Cretaceous age Taylor Creek Group (McLaren et al., 1989). The Powell Creek Formation consists of intermediate to felsic pyroclastics and flows with minor laminations of argillites, quartz-rich siltstones and sandstones. The Taylor Creek Group is

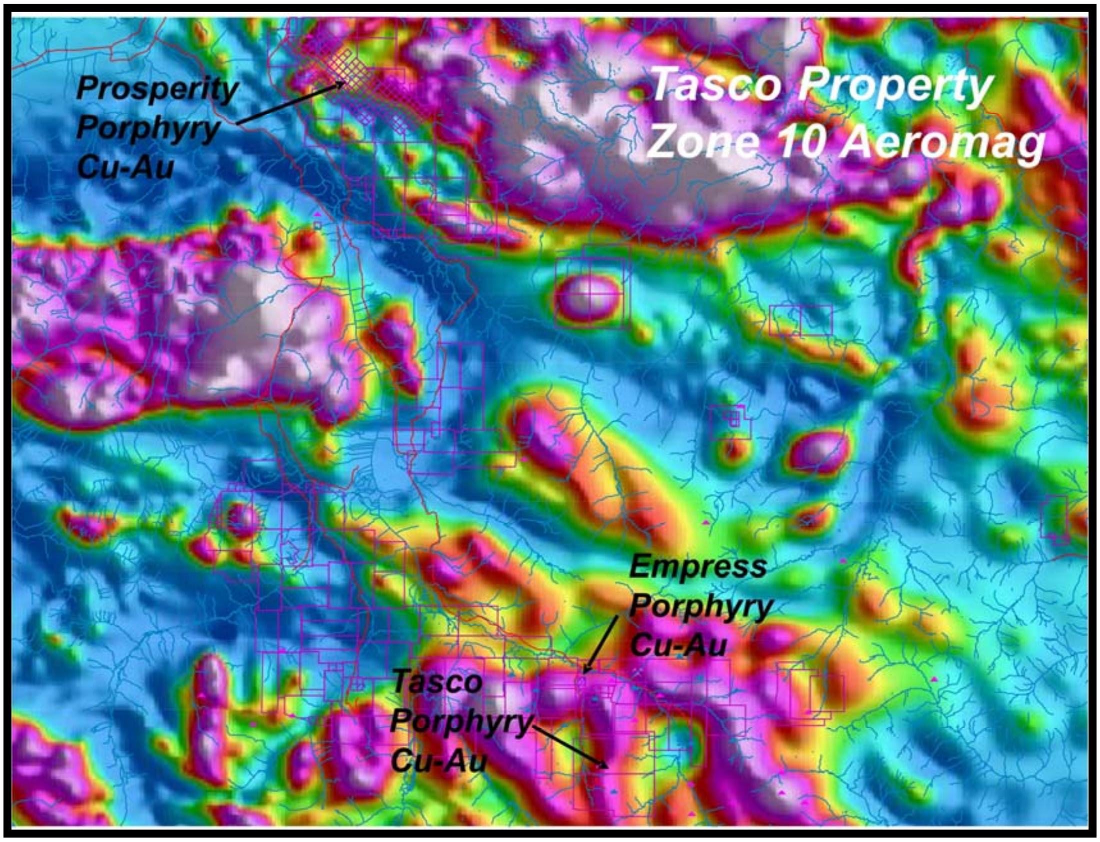


**Figure 4-1. Zone 10 Aeromag of Taseko Lakes Region (MapPlace)**

characterized by rhyolitic to basaltic tuffs and flows and interlaminated argillites and sandstones. These lithologic sequences represent a volcanic island arc environment. See Figure 4-1 to see the magnetic map covering the study area.

## *4.2 Local Geology*

The host rock on the property is an equigranular, medium to coarse-grained, quartz-hornblende diorite (Payne, 1990). The composition of the diorite is quartz (20-25 %), plagioclase (40-60 %), orthoclase (8-10 %) and hornblende (8-10 %) with minor amounts of biotite (1-3 %), pyrite (1-4 %), chalcopyrite (< 1 %) and magnetite (< 1 %). Quartz and orthoclase are interstitial to the plagioclase crystals. Hornblende is equally dispersed throughout the quartz diorite and its major crystal axis does not exhibit a preferred orientation. Weathered surfaces are stained with limonite while fresh surfaces appear medium to light grey.

Intruding the quartz-hornblende diorite are small (300 to 500 meters) feldspar porphyry stocks and plugs (Figure 4-3). The feldspar phenocrysts are lath or irregular in shape and vary in size and can be vuggy in places (Payne, 1990). The feldspars also display a white halo around the perimeter of the crystals. Long (3 mm), thin crystals of biotite (< 1 %) are disseminated throughout the unit. Pyrite is disseminated throughout the feldspar porphyry units as well as smears on fracture surfaces.

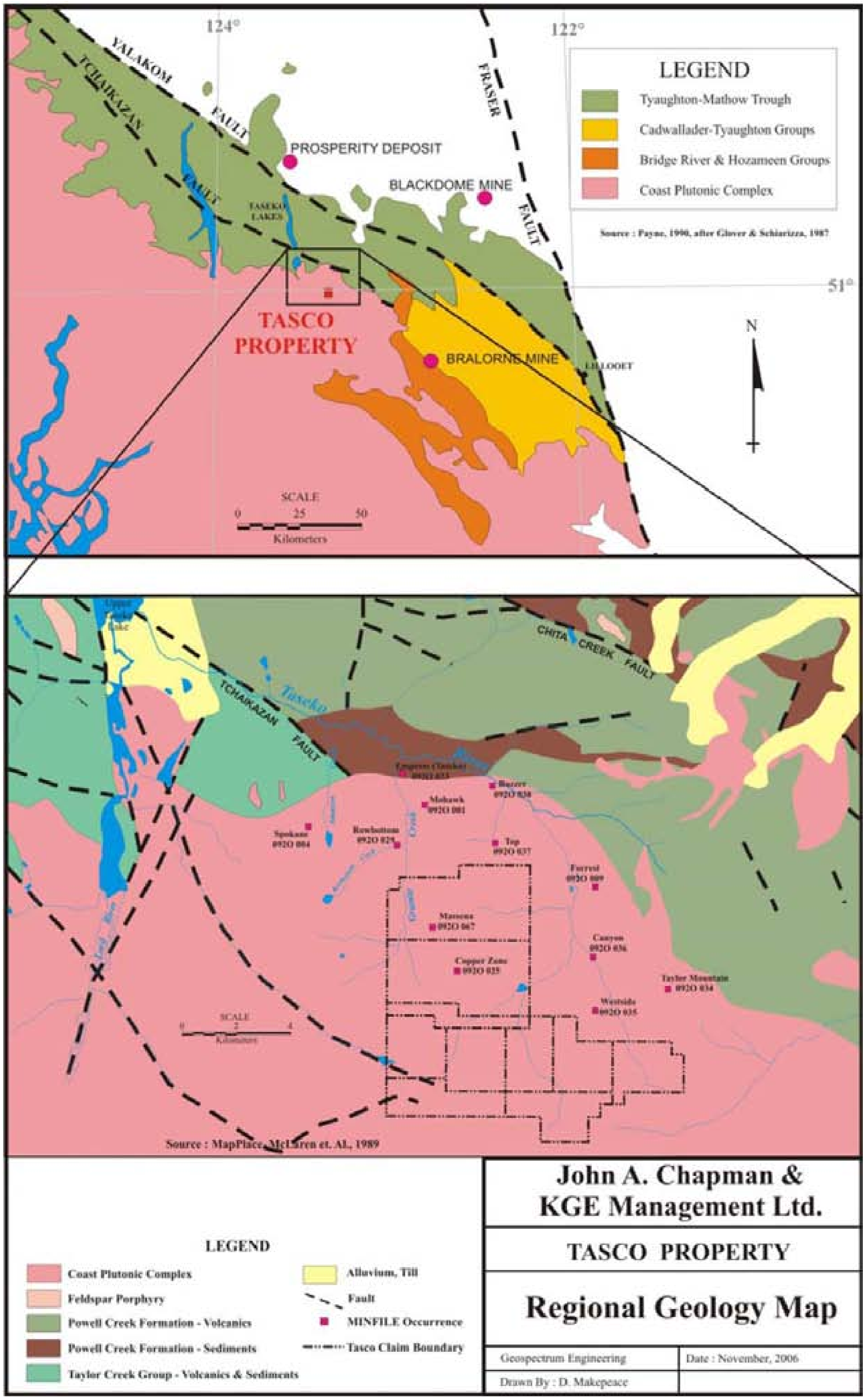


**Figure 4-2. Regional Geology Map**

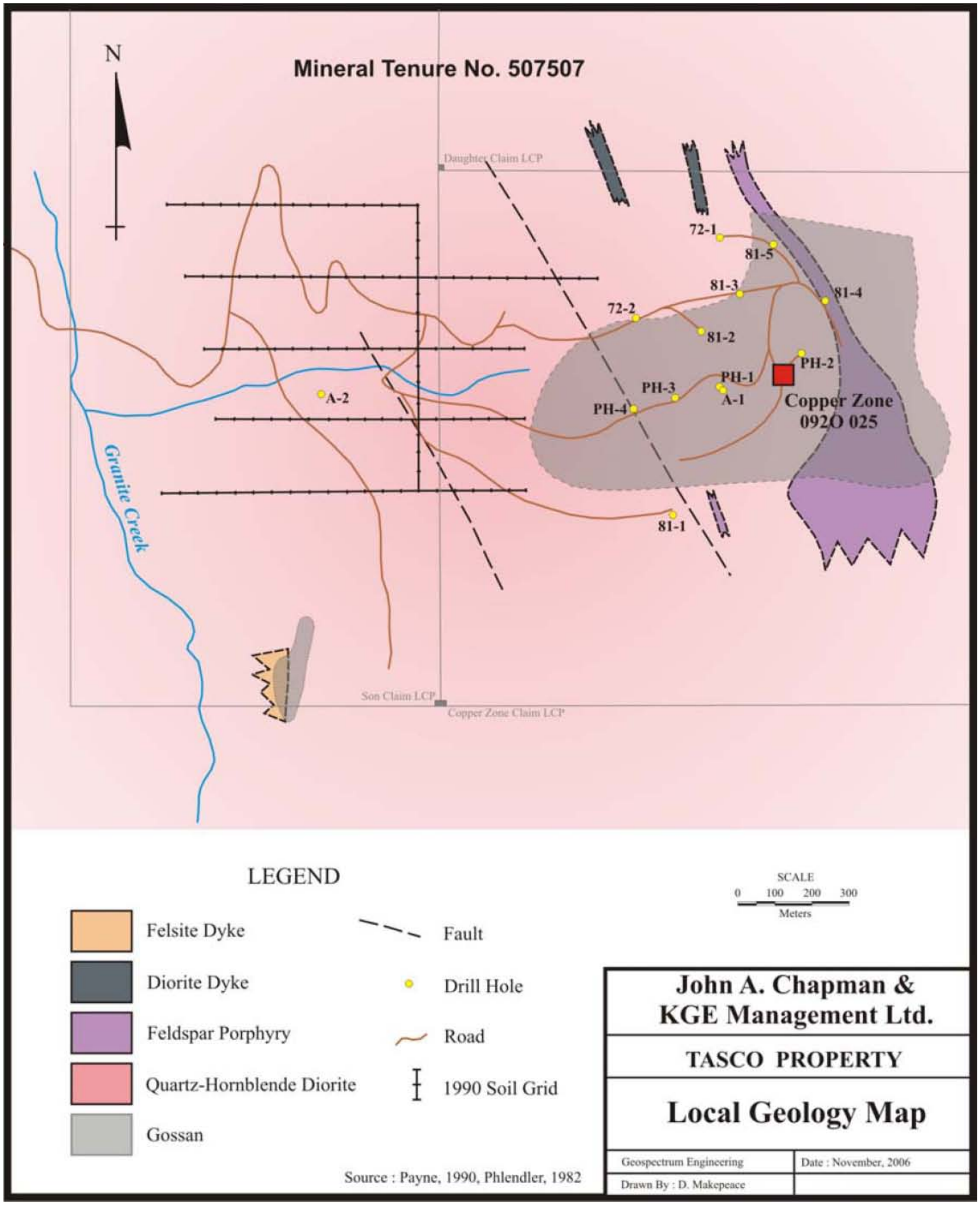


**Figure 4-3. Local Geology Map**

Core from the different drilling programs on the property has identified cross-cutting and post-mineralized dykes of diorite, alaskite and quartz porphyry composition.

## 4.3 Structure

The major structure in the area is the Tchaikazan Fault. It trends to the northwest and typically separates Lower and Upper Cretaceous rocks in the Tyaughton-Methow Trough. The location of the fault is marked by orange-weathering alteration zones, pervasive carbonate alteration and localized siliceous breccia zones. This fault has been mapped to have a dextral transcurrent movement of more than 30 kilometers (McLaren, 1989). Other major faults that are parallel to the Tchaikazan Fault and within the Tyaughton-Methow Trough sediment package are the Chita Creek Fault and the Yalakom Fault.

The Tchaikazan Fault trends through the northeast corner of the property. Northwesterly trending structures parallel and possibly related to the Tchaikazan Fault may have controlled the emplacement of intrusives and related mineralization on the property.

The Coast Plutonic rocks are normally massive and jointed. Locally, foliation is well developed and is fractured in places.

## 4.4 Deposit Types

Mineralized showings within the Coast Plutonic Complex include disseminated porphyry-type (i.e. Copper Zone, Rowbottom, Mohawk [MINFILE 092O 001] and Buzzer [MINFILE 092O 038]), vein and fracture controlled (i.e. Spokane [MINFILE 092O 004], Massena [MINFILE 092O 067] and Top [MINFILE 092O 037]) and intrusive breccia-type (i.e. Mohawk [MINFILE 092O 001]) deposits.

To the north of the Complex and within the volcanics there are several copper and gold deposits (i.e. Taylor-Windfall [MINFILE 092O 028] and Empress [MINFILE 092O 033]) that have been discovered.

The major metals in these Coast Plutonic Complex deposits are copper, molybdenum and gold with minor silver. In the Tyaughton-Methow Trough, the major metals are copper and gold with minor zinc and lead mineralization.

The property has two known showings (Copper Zone MINFILE 092O 025 and Massena [MINFILE 092O 067]). The Copper Zone prospect is considered to be a LO4 calcalkaline porphyry Cu ± Mo ± Au classic-type deposit as defined by the BC Geological Survey’s Mineral Deposit Profiles. The capsule description states:

> Stockworks of quartz veinlets, quartz veins, closely spaced fractures and breccias containing pyrite and chalcopyrite with lesser molybdenite, bornite and magnetite occur in large zones of economically bulk-mineable mineralization in or adjoining porphyritic intrusions and related breccia bodies. Disseminated sulphide minerals are present, generally in subordinate amounts. The mineralization is spatially, temporally and genetically associated with hydrothermal alteration of the hostrock intrusions and wallrocks.
> (http://www.em.gov.bc.ca/Mining/Geolsurv/MetallicMinerals/MineralDepositProfiles/PROFILES/L04.htm)

The Massena showing is a series of small parallel quartz veins within a north trending feldspar porphyry dyke which cuts the quartz-hornblende diorite. The limonite-stained dyke contains silver and minor gold and cerrusite. The showing has not been actively explored by mining companies, probably due to the erratic nature of these small showings. The showing has not been categorized by MINFILE but fits the characteristics of an I06 Cu ± Ag intrusion-related quartz vein deposit or it could be a distal showing within the L04 calcalkaline porphyry of the Copper Zone. More work will need to be done on this showing to properly categorize it.

## *4.5 Mineralization*

The mineralization within the Copper Zone deposit is disseminated throughout the quartz hornblende diorite as well as smears on fracture surfaces. Pyrite is the primary sulphide and averages 3 to 5 % in the quartz-hornblende diorite and up to 12 % in the feldspar porphyry. Chalcopyrite is disseminated in localized gossan zones within the quartz-hornblende diorite and as smears on silicified fracture surfaces. Molybdenite occurs as irregular pods within silicified areas of the quartz-hornblende diorite and in localized quartz veinlets.

Minor disseminated galena and sphalerite have been identified in vuggy quartz-filled shear zones on the property.

## *4.6 Alteration*

Silicification is distributed throughout the quartz-hornblende diorite and the feldspar porphyry but is more intense near or in fault zones.

The plagioclase within quartz-hornblende diorite and the feldspar porphyry is locally altered to a pink-white colour indicating sericite alteration. Primary features such as crystal twinning and zoning are still evident indicating that the alteration is of low grade.

Chlorite-epidote alteration is evident in the quartz-hornblende diorite near the Copper Zone. Chlorite reaction rims form around the hornblende and biotite phenocrysts. Chlorite with minor epidote and calcite replacement was observed in the groundmass and on feldspar phenocrysts (Payne, 1990).

# 5 History

Exploration of the eastern margin of the Coast Plutonic Complex has resulted in the discovery of numerous anomalous copper showings and prospects during the 20$^{th}$ century. Several regional geochemical reconnaissance programs by both the federal/provincial geological surveys and by private mining companies were undertaken in the 1960’s and 1970’s in search of low-grade porphyry-style copper deposits.

Exploration programs were carried out within the Taseko Lakes area by many major exploration companies including Cominco Ltd., Canex Placer Ltd., Phelps Dodge Corporation, Bethlehem Copper Corporation, Home Oil Ltd., Sumitomo Metal Mining Canada Ltd. and others.

The Tasco property was originally part of a larger property that focused on the Rowbottom Creek prospect (MINFILE 092O 029) explored by Phelps Dodge Corporation in 1964 (Phendler, 1982). The prospect was named for the small tributary of Granite Creek that cuts a surficial gossan zone discovered by the company from reconnaissance prospecting of the area. A 57-meter diamond drill hole intersected anomalous copper mineralization (0.12 %Cu) over its length (Phendler, 1982).

The Victor Mining Corporation held the Tasco property from 1969 to 1972 and changed the name from Rowbottom to NW & Bill, to avoid confusion with the Rowbottom Creek prospect. Four (4) diamond drill holes and 4 percussion holes were completed by Victor or by a syndicate (Victor Mining Corporation, Granite Mountain Mines Ltd. and Galveston Mines Ltd.) under the direction of M. W. Meyers, P.Eng. Mr. J. Bucholz supervised the drilling of 2 drill holes and carried out geological mapping of the property in 1972.

The claims lapsed in 1975 and were re-staked by United Gunn Resources Ltd. Three mineral claims were established over the known gossan zone (“Copper Zone”, “Son” and “Daughter”). The gossan zone was named the Copper Zone (MINFILE 092O 025). In August 1980 two trenches were completed which uncovered abundant malachite staining. In 1981, five diamond drill holes were completed in the Copper Zone, totalling 977 meters. The weighted average grade of these 5 drill holes was 0.20 %Cu and 0.011 %Mo. The deepest hole 81-2 was mineralized for its entire length (288.6 meters at a weighted average grade of 0.28 % Cu and 0.023 % Mo). Assays were undertaken by Acme Analytical Laboratories Ltd., Vancouver. A true thickness was never determined. With the limited information available, Mr. R. W. Phendler, P.Eng., concluded that the identified mineralized granodiorite zone appeared to trend north-northwesterly and that the Mo content increased with depth in hole 81-2 (Phendler, 1982).


**Photo 5-1. On Tasco Copper Zone at DDH 81-1, view toward Northwest**

United Gunn Resources completed a geological and geochemical survey of the Copper Zone showing in 1990. The results of this program defined three base and precious metal anomalies.

- The first anomaly corresponds to the porphyry copper molybdenum deposit of the Copper Zone. The geological and geochemical results indicate that the mineralization is in the form of a bisected annular structure (Payne, 1990). The anomaly also indicates that only a small percentage of the mineralized halo has been drill tested (Photo 3).
- The second target identified in the program is an 800-meter by 350-meter molybdenum-tungsten-gold anomaly that is open to the north, south and west, located approximately 550 meters west of the Copper Zone.
- The third anomaly is a 30-meter by 150-meter gossan zone south of the Copper Zone. The gossan is attributed to disseminated pyrite, chalcopyrite, pyrrhotite and magnetite associated with a felsic dyke intruding a quartz-hornblende diorite. This showing has been interpreted to be a possible skarn-type deposit at the periphery of the porphyry copper-molybdenum deposit of the Copper Zone.

The Tasco property lay dormant from 1990 until February 2004, at which time the present owners staked the present claim boundary (Figure 2).


**Photo 5-2. Copper Zone gossan area, looking east**

**Photo 5-3. Copper Zone gossan area, looking east**

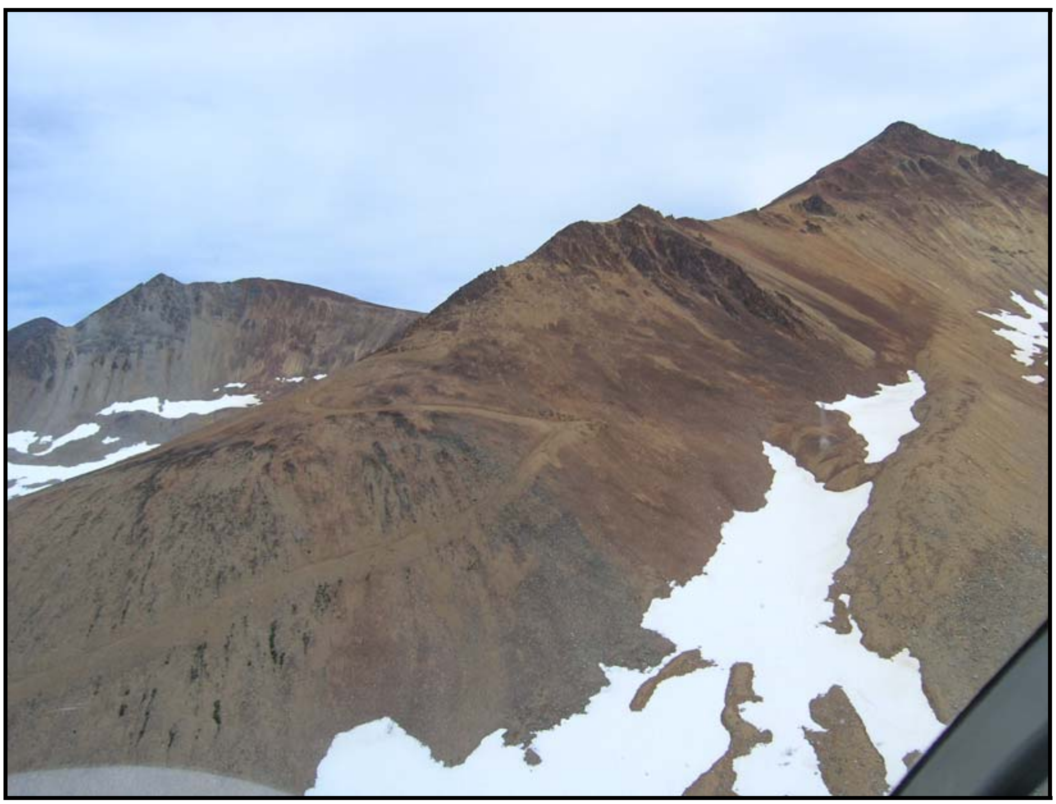

**Photo 5-4. Copper Zone gossan area, looking northeast**

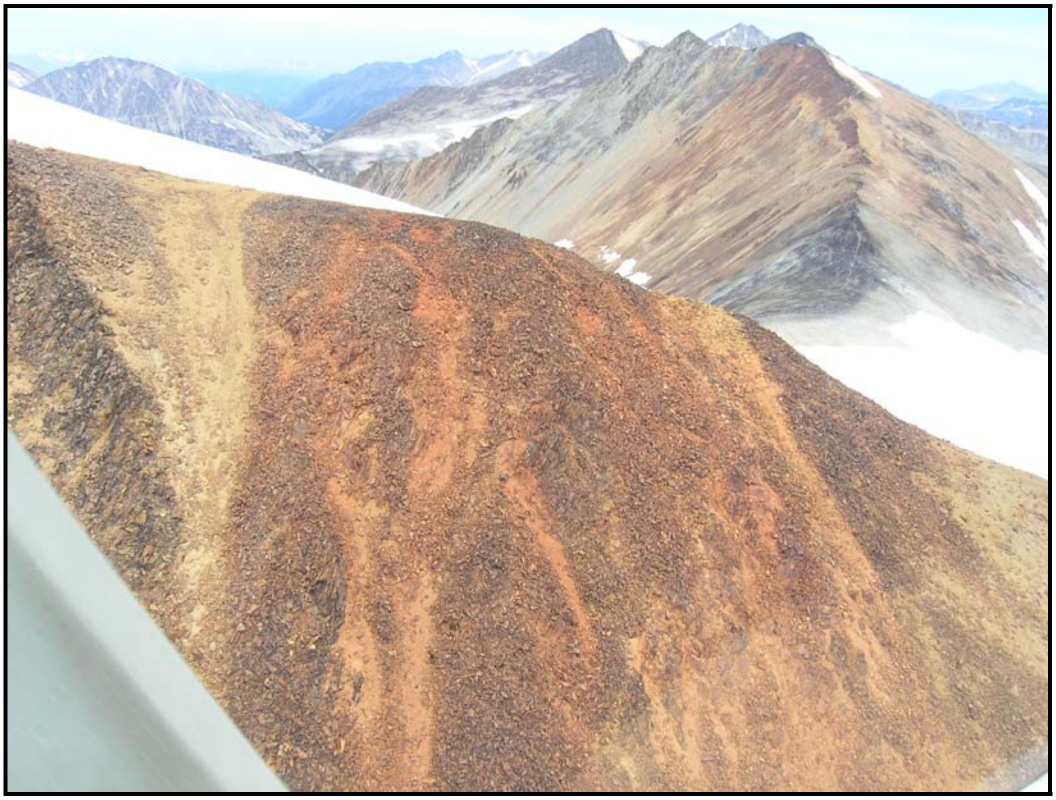

**Photo 5-5. East side of the Copper Zone gossan area, looking north**

A short property visit was completed on July 4, 2006 and again on September 7, 2006.

# 6 Historical Exploration Programs

The Tasco property has been explored periodically for at least three decades. The exploration programs, however, have been limited to early stage mineral development.

The following is a summary of the historical exploration results from previous operators of the property. The results of these historical exploration programs illustrate that the Tasco property is a property of merit. The present owners of the property have not completed any physical work on the property other than 1) reconnaissance, and 2) remote sensing Aster image analysis in 2006.

## *6.1 Geochemical Surveys*

### 6.1.1 Grid

A 5,400-meter grid was constructed by hip chain and compass over the Copper Zone showing in 1990 (Figure 4 and 5). The north-south 800-meter picketed baseline was established 580 meters north of the LCP of the old (1975) "Copper Zone" and "Son" mineral claims of United Gunn Resources Ltd. East-West cross lines were established every 200 meters along the baseline. Stations were picketed every 50 meters along each cross line.

### 6.1.2 Soil Geochemical Survey

Soil sample results indicated overlapping copper, gold, molybdenum and tungsten anomalies over the central part of the grid (Central Zone Anomaly –Target 1, Payne, 1990). The anomalies portray a dispersion pattern to the west (down slope) and to the northwest from the main surface copper and molybdenum showing (Figure 7). The northwest pattern may indicate a possible strike extension of the mineralization

Another overlapping series of anomalies (gold, molybdenum and tungsten) were identified approximately 550 meters from the Central Zone Anomaly (West Zone – Target 2, Payne, 1990). The trend of these anomalies is also to the northwest and exhibits a zoning-type pattern. The full extent of these anomalies has not been defined. They are open to the north, south and west.

### 6.1.3 Rock Reconnaissance Survey

During the survey a new gossan zone was discovered near the United Gunn Resources Ltd.'s south claim boundary and well within the present claim boundary (Figure 6-1). It was observed that the gossan has disseminated pyrite, chalcopyrite, pyrrhotite and magnetite mineralization within a felsic dyke that intruded the quartz-hornblende diorite (Payne, 1990). Rock samples from bedrock and float material down slope returned anomalous copper, zinc, silver, arsenic and gold (Figure 6-1). It was thought by the exploration crew to possibly be a skarn-type deposit on the edge of the main copper/molybdenum porphyry deposit.


**Photo 6-1. View to east over Copper Zone (July 4, 2006)**

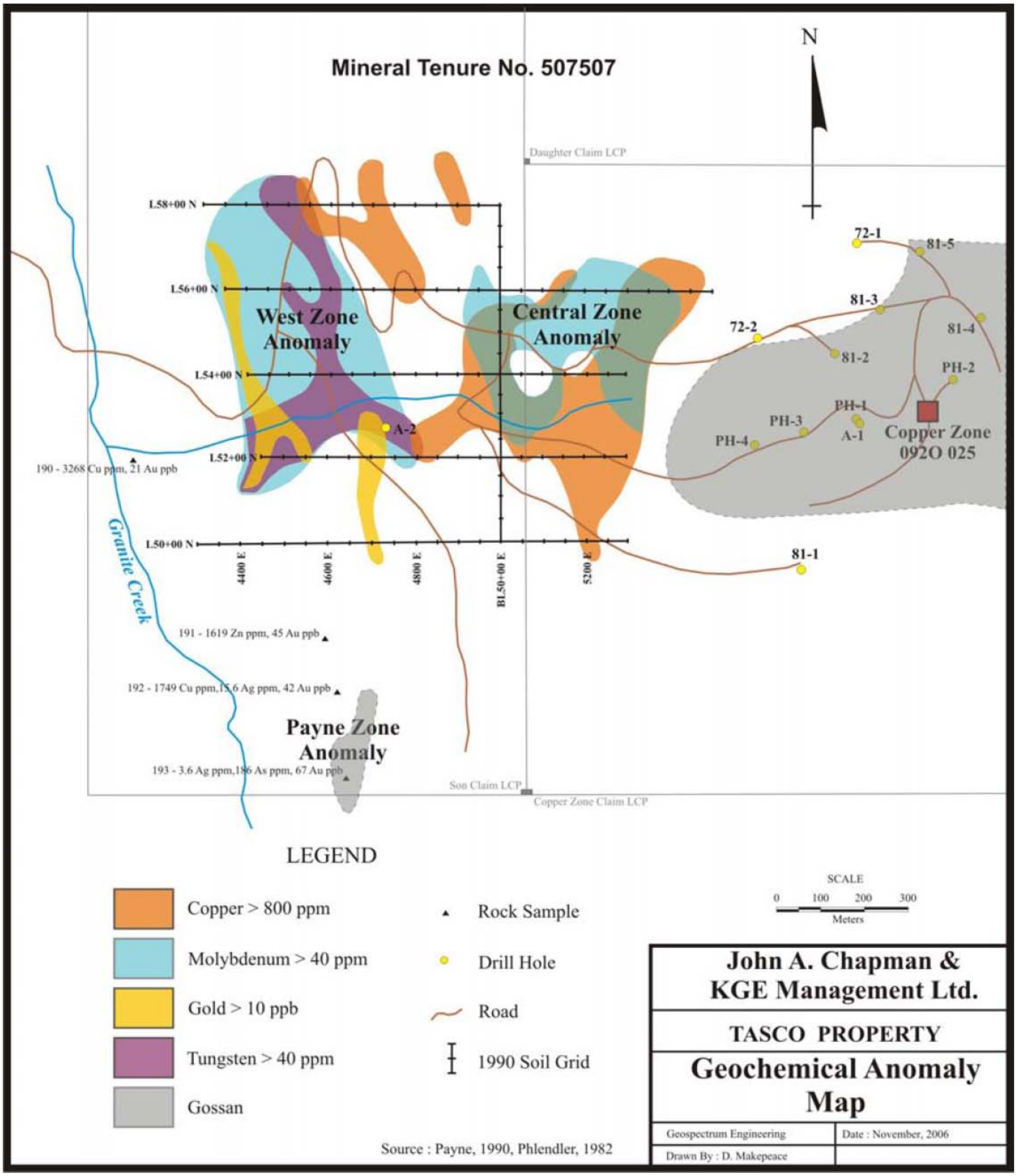


**Figure 6-1. Geochemical Anomaly Map**

## *6.2 Drilling*

There were 9 core drill holes and 4 percussion holes (PH-1 to PH-4) completed around the Copper Zone gossan area for a total of 1,872.7 meters. Table 6-1 lists the important data that have been obtained from these holes. The location of the holes has been approximated by superimposing old scanned maps of the work onto a MapPlace map database and is illustrated in Figure 4-3 and 6-1. Also refer to Photo 6-1 and 6-2 for location of some drill collars.

***Table 6-1. Tasco Drill Hole Data***

| Hole No. | Bearing (° Az) | Dip (°) | Length (m) |
|---|---|---|---|
| 81-1 | 090 | -45 | 213.3 |
| 81-2 | 000 | 90 | 303.8 |
| 81-3 | 000 | 90 | 154.2 |
| 81-4 | 000 | 90 | 152.4 |
| 81-5 | 000 | 90 | 153.0 |
| A-1 | 145 | -45 | 121.2 |
| A-2 | 020 | -45 | 125.8 |
| 72-1 | 000 | 90 | 211.5 |
| 72-2 | 090 | -60 | 92.1 |
| PH-1 | 000 | 90 | 121.2 |
| PH-2 | 000 | 90 | 72.7 |
| PH-3 | 000 | 90 | 60.6 |
| PH-4 | 000 | 90 | 90.9 |

The nine diamond drill holes and four percussion holes were drilled within a kilometer of each other. The depth of the mineralization in hole 81-2 (from 15.2 meters to the bottom of the hole at 303.8 meters [288.6 meters at a weighted average grade of 0.28 %Cu and 0.023 % Mo, **not** true thickness]) indicates that the deposit may prove to have significant dimensions when more drilling is completed in this area. At the present, there is insufficient drilling within the known mineralized zone as well as to depth and to the northwest to define the true dimensions of the deposit. Also, the 2006 Aster Image analysis indicates that the kaolinite, illite and iron oxide continue over the east side of the mountain at the Copper Zone and this area is untested by drilling (see remote sensing images in Section 9.2).

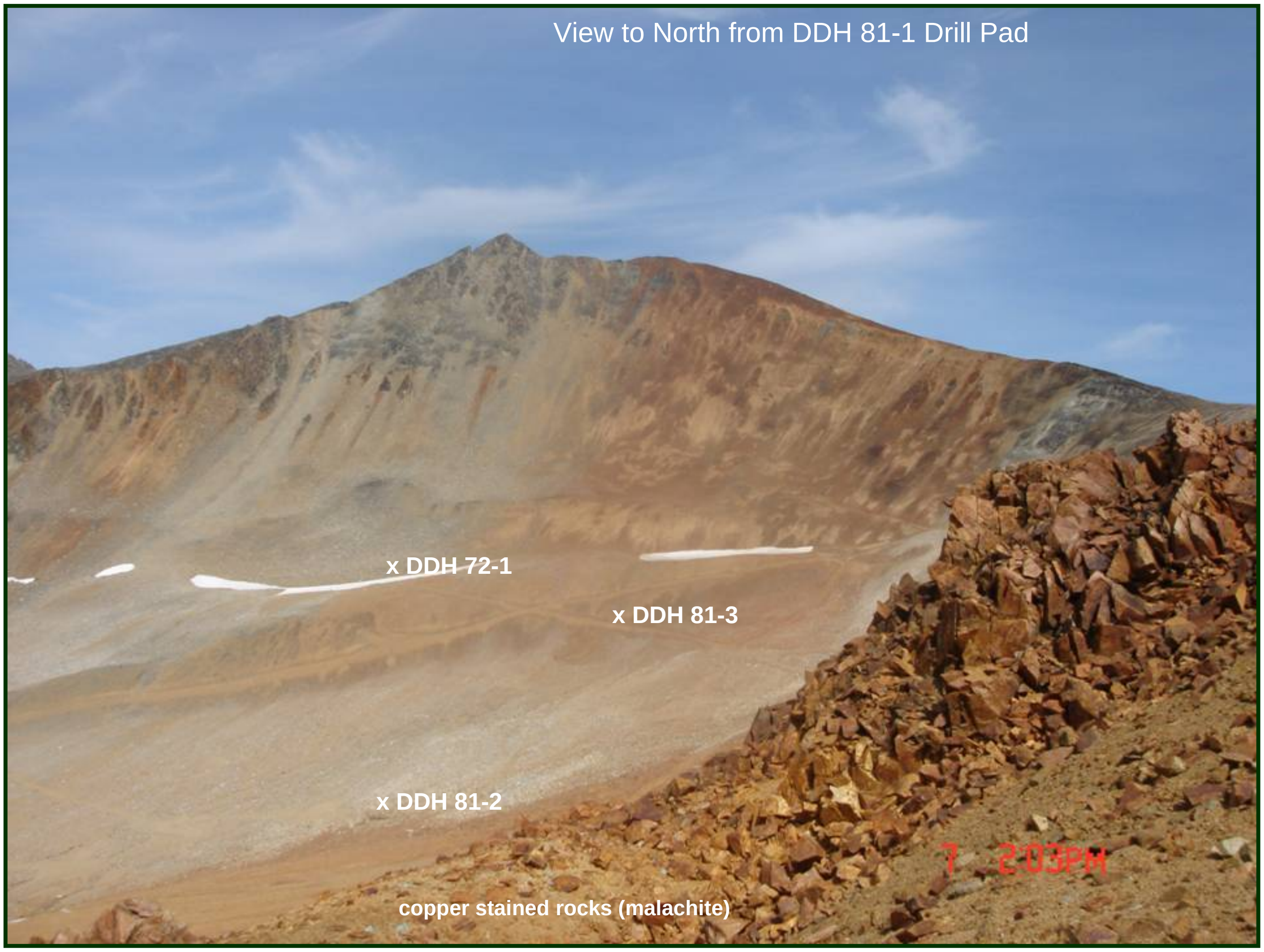


**Photo 6-2. View north from DDH 81-1 at Copper Zone (September 7, 2006)**

# 7 Historical Sampling Procedures and Approach

## *7.1 Soil Samples*

Soil samples taken during the 1990 exploration program were collected at every picket station on the established grid mentioned in the previous section (see Figure 4). There were a total of 103 soil samples collected from the grid. The geologist collected the samples from a poorly developed "B"-horizon wherever possible (Payne, 1990). The sample depths varied from 25 to 35 centimeters over the grid. The soil was placed in a kraft bag with the grid location station marked on the bag with a felt marker. The samples were dried and checked off before being shipped directly to Acme Analytical Laboratories Ltd. in Vancouver.

## *7.2 Rock Samples*

During the 1990 exploration program there were 34 rock samples taken from bedrock and float boulders on the property. Each sample was placed in a heavy plastic bag along with a consecutive-numbered sample tag. The outside of the bag was also be marked with the same sample number. Each sample was described and documented before being shipped to Acme Analytical Laboratories Ltd. in Vancouver (Payne, 1990).

## 7.3 Drill Hole Samples

Drill hole logs and assay certificates are available only for the 1981 diamond drill holes. Individual assay results for earlier diamond and percussion drill holes are found on drill sections (Phendler, 1980a). The author has no knowledge of the core sampling procedure for these holes but he has no concern regarding the sample results due to the geologists in charge. The majority of the early drill samples were sent to Acme Analytical Laboratories Ltd. in Vancouver. It is unknown if any core from any program is still available for inspection.

The 1981 holes were sampled every 3.05 meters down the hole (Phendler, 1982). The author has no knowledge of the core sampling procedure for these holes but he has no concern regarding the sample results due to the geologists in charge. The drill samples were sent to Acme Analytical Laboratories Ltd. in Vancouver. Core recovery for these five holes ranged from 93.9 to 98.7 %.

Summary drill hole assay information is listed below in Table 3. Due to the disseminated and typically widespread nature of porphyry mineralization, the limited drilling and limited individual drill assays of the earlier holes the true thickness of the intersections can not be determined at this time.

***Table 7-1. Tasco Drill Hole Assay Data***

| Hole No. | Mineralized Interval (m) | Cu (%) | Mo (%) |
|---|---|---|---|
| 81-1 | 182.9 | 0.16 | 0.003 |
| 81-2 | 288.6 | 0.28 | 0.023 |
| 81-3 | 100.6 | 0.15 | 0.004 |
| 81-4 | 9.1 | 0.15 | 0.005 |
| 81-5 | 64.0 | 0.07 | 0.002 |
| A-1 | 100.6 | 0.23 | 0.007 |
| A-2 | 109.7 | 0.12 | 0.004 |
| 72-1 | 45.7 | 0.22 | 0.005 |
| 72-2 | 36.6 | 0.28* | |
| PH-1 | 103.6 | 0.21 | 0.007 |
| PH-2 | 54.9 | 0.19 | 0.005 |
| PH-3 | 57.9 | 0.12 | 0.005 |
| PH-4 | 82.3 | 0.10 | 0.007 |

Note : * This is an equivalent copper grade.
Not true widths

Hole 81-2 is mineralized throughout its length and contains several sections of higher grade mineralization including:

***Table 7-2. Tasco Hole 81-2 Assay Data***

| Interval. (m) | Length (m) | Cu (%) | Mo (%) |
|---|---|---|---|
| 63.4 – 87.8 | 24.4 | 0.35 | 0.006 |
| 179.2 – 270.7 | 91.5 | 0.39 | 0.029 |
| 270.7 – 303.8 | 33.1 | 0.17 | 0.079 |

Note : Not true widths

It should be noted that the molybdenum grade increases with depth.

In the 1990 exploration program diamond drill core from holes 81-3 and 81-5 were re-sampled (Payne, 1990). The core was originally stored in a warehouse of Buccaneer Diamond Drilling Ltd. in Williams Lake (Phendler, 1982) but by 1990 it was moved to the property of Ms Harris in 150 Mile House (comm. John Chapman). This indicates that a portion of core was still available in 1990. It is unknown whether this core still exists and if it does exist, what condition it is in.

There were 61 samples taken from these two drill holes in 1990. Each sample was 1.52 meters in length. The author has no knowledge of the core sampling procedure for these holes but he has no concern regarding the sample results due to the geologists in charge. Each sample was described and documented before being sent off to Acme Analytical Laboratories Ltd. in Vancouver.

The author is confident that all the soils, rocks and core were correctly sampled by professional and technically competent geologists and technicians.

# 8 Historical Sample Preparation, Analysis and Security

## *8.1 Soil Samples*

The soil samples were analysed by Acme Analytical Laboratories Ltd. in Vancouver (Payne, 1990). In the laboratory the samples were dried at 60°C and sieved to minus 80 mesh. A 0.5 gram sample was digested with 3 ml of 3-1-2 HCl-$HNO_3$-$H_2O$ at 95°C for one hour and diluted with water. This method gives a total digestion for base metal elements, a partial digestion for rock forming elements and a slight digestion for refractory elements. There is also a solubility limit for silver, lead, antimony, bismuth and tungsten in high grade samples.

The samples were then analyzed for 30 elements by ICP (Inductively Coupled Plasma) while a 20-gram sample was used to do a gold analysis with an AA (atomic absorption) finish.

## *8.2 Rock Samples*

The rock samples were analysed at Acme Analytical Laboratories Ltd. in Vancouver. These samples were crushed to approximately 0.5 cm and then approximately half the sample was pulverized to minus 100 mesh. A 30-gram sample was digested with 3 ml of 3-1-2 HCl-$HNO_3$-$H_2O$ at 95°C for one hour and diluted with water.

The samples were then analyzed for 30 elements by ICP (Inductively Coupled Plasma) while a 20-gram sample was used to do a gold analysis with an AA (atomic absorption) finish.

### *8.3 Drill Hole Samples*

The 1981 core samples were analysed at Acme Analytical Laboratories Ltd. in Vancouver. The analytical method used by Acme was not stated in any of the reports and there are no laboratory certificates available.

Analytical and sample preparation methods are unknown for the earlier drill programs.

In the 1990 exploration program diamond drill core from holes 81-3 and 81-5 were re-sampled (Payne, 1990). The samples were sent to Acme Analytical Laboratories Ltd. in Vancouver. These samples were crushed to approximately 0.5 cm and then approximately half the sample was pulverized to minus 100 mesh. A 30-gram sample was digested with 3 ml of 3-1-2 HCl-$HNO_3$-$H_2O$ at 95°C for one hour and diluted with water.

The samples were then analyzed for 30 elements by ICP (Inductively Coupled Plasma) while a 20-gram sample was used to do a gold analysis with an AA (atomic absorption) finish.

### *8.4 Data Verification*

It is unknown if there were any quality control (QC) samples inserted by property owners or operators when analysis was done. The geologists that worked on these programs (Meyer, Phendler, and Payne) are all well respected professionals. Although QC protocols were not as rigorous at that time, the author is confident that the QC of the samples was not compromised. However, it is known that Acme Analytical Laboratories Ltd. has a good internal quality control program.

In the 1990 exploration program diamond drill core from holes 81-3 and 81-5 was re-sampled as data verification (Payne, 1990). The author (Makepeace) examined the assay results from the 1990 exploration re-sampling program (Payne, 1990) and compared them to the same intervals from the original drill logs (Phendler, 1980) on an Excel spreadsheet. There appeared to be a good correlation with all the sections of hole 81-3 and 81-5. The author is confident that analytical data for these holes was properly sampled and analysed on both occasions.

All exploration programs documented on this property were undertaken by reputable geologists and engineers. There is no reason to suspect that the sampling, preparation or analysis is faulty in any way.

# 9 Aster Image Processing 2006 (see Appendix A)

## *9.1 Introduction*

Investigation of ASTER imagery and its potential to identify geologically significant features on and around the Tasco mineral claims was undertaken by Ward Kilby of Cal Data Ltd. at the request of the property owners. A search was completed for the best available ASTER image and it was acquired. Several routines were run on the imagery to correct for cross-talk problems in the sensor, atmospheric effects and spatial accuracy. The resultant orthorectified relative reflectance data set was then examined with a number of multispectral techniques to identify mineral assemblages that could be used in the search for mineralization. Three styles of analysis were used: simple band combinations; a principal component analysis technique referred to as the Crosta Method; and Spectral Angle Mapper. Two major spectral features were identified, a major northwest trending linear structure and a spectral feature associated with the Copper Zone occurrence.

The digital elevation model generated during the orthorectification process was used in an attempt to identify structural features that could be controlling factors in the location of mineralization. In addition the digital elevation model constructed from the Shuttle Radar Topographic Mission was also obtained. A number of hill shaded views were generated from both DEMs to assist in structural interpretations

The results of the image analysis are presented as stand alone image maps in Kilby's Appendix A report, included as standard georeferenced image files in its appendix and included in a KML file is an integral part of Kilby's report and it contains additional data sets essential to the understanding and interpretation of the image analysis results.

## *9.2 Processed Aster Images*

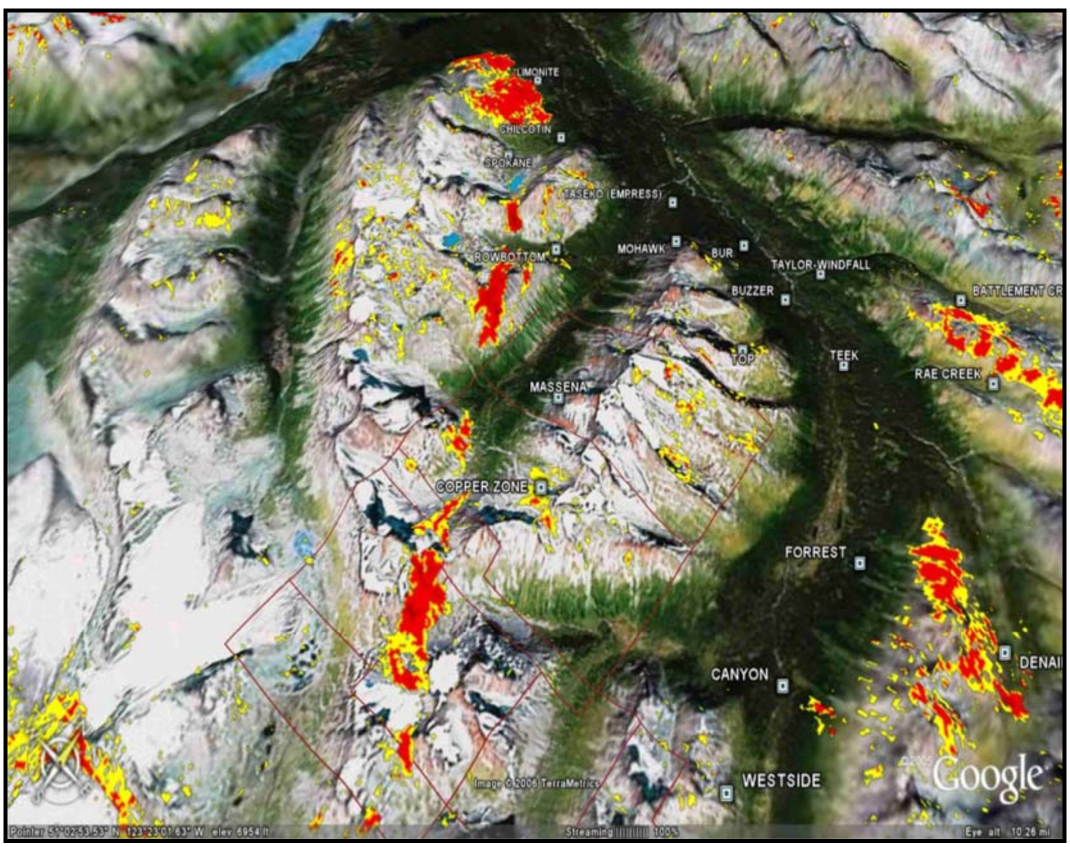


**Figure 9-1. Kaolinite, view to northwest over Copper Zone**

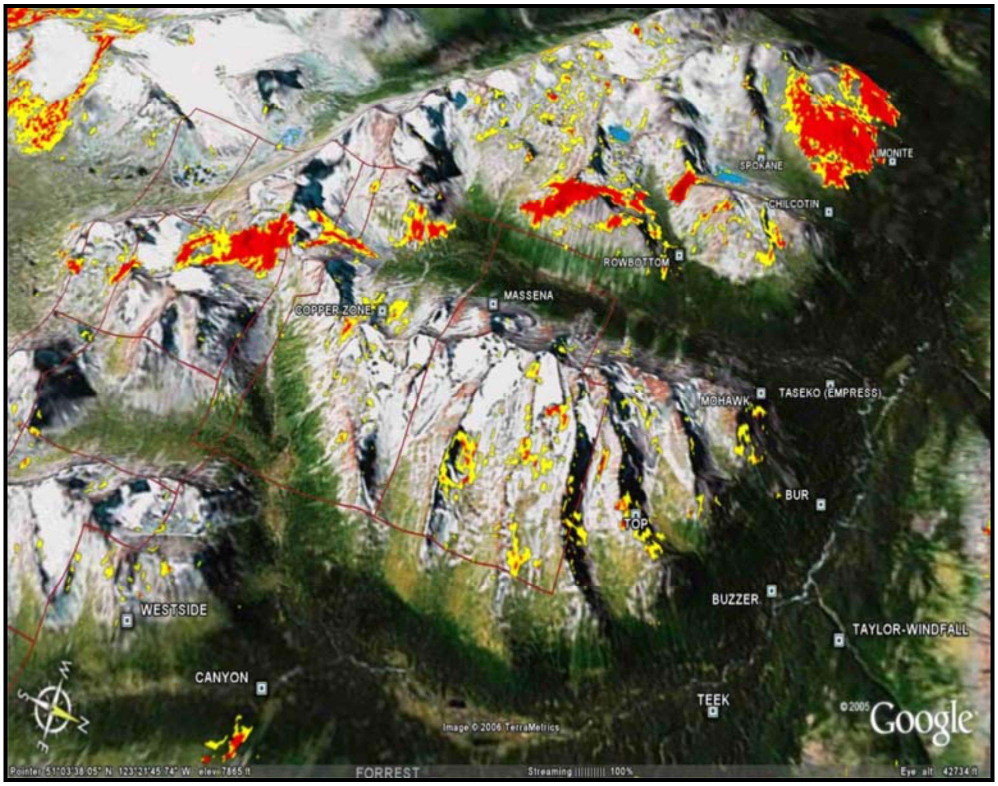


**Figure 9-2. Kaolinite, view westerly over Copper Zone**

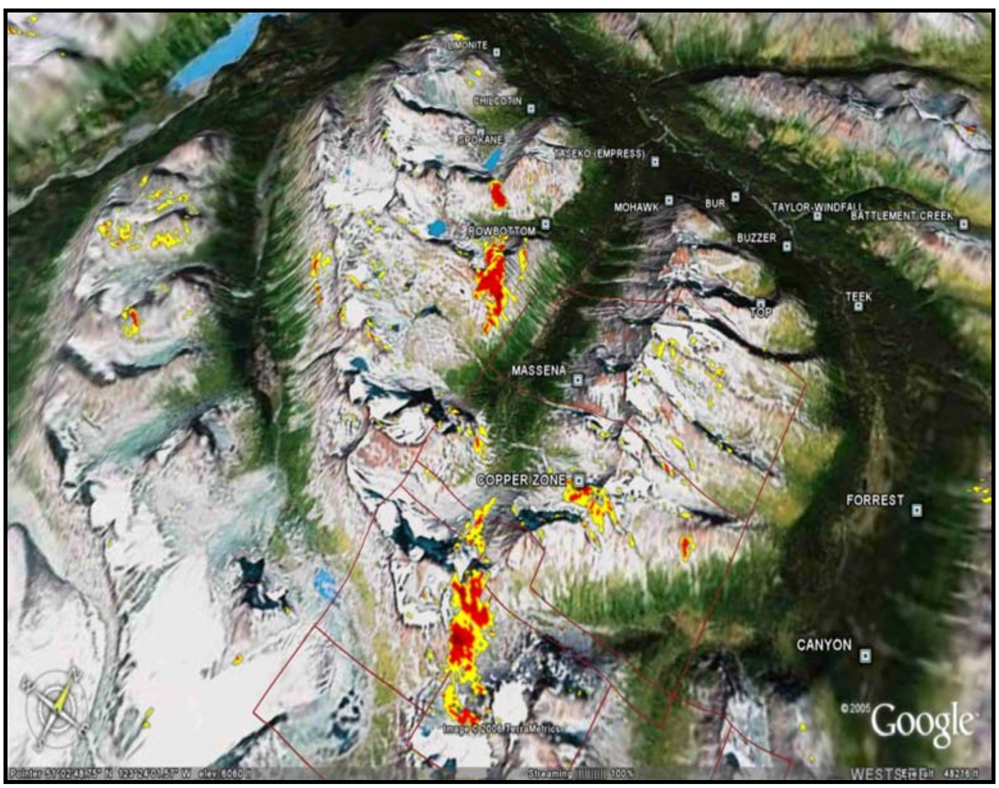


**Figure 9-3. Illite, view to northwest over Copper Zone**

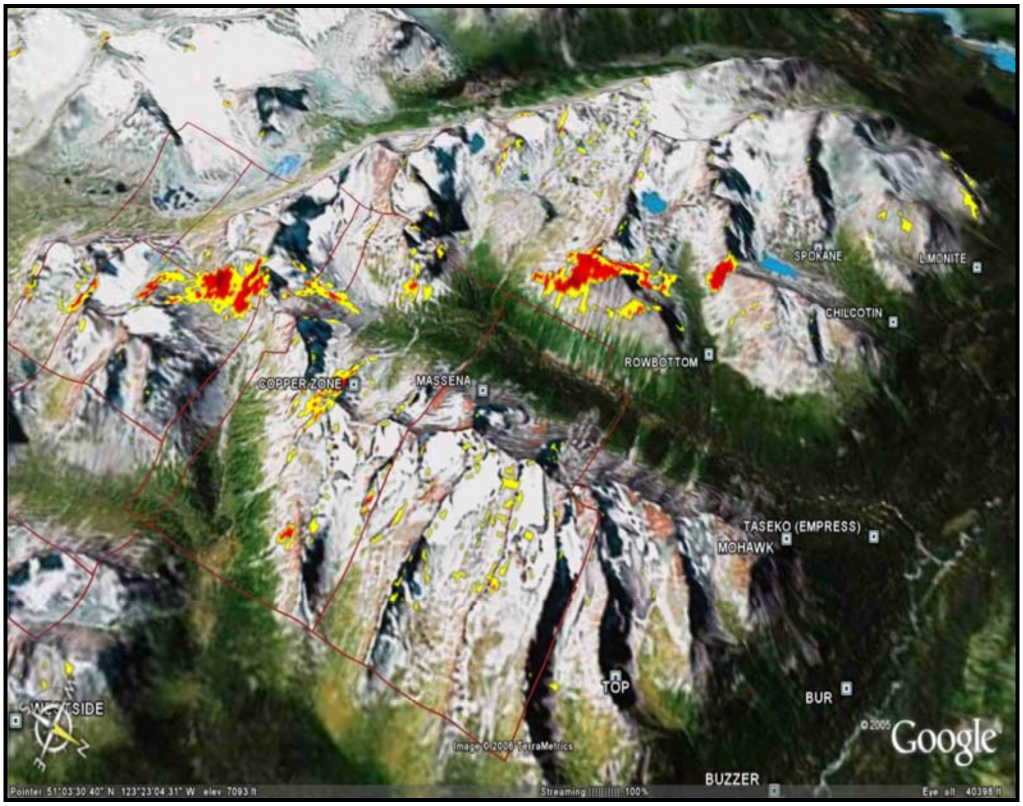


**Figure 9-4. Illite, westerly view over Copper Zone**

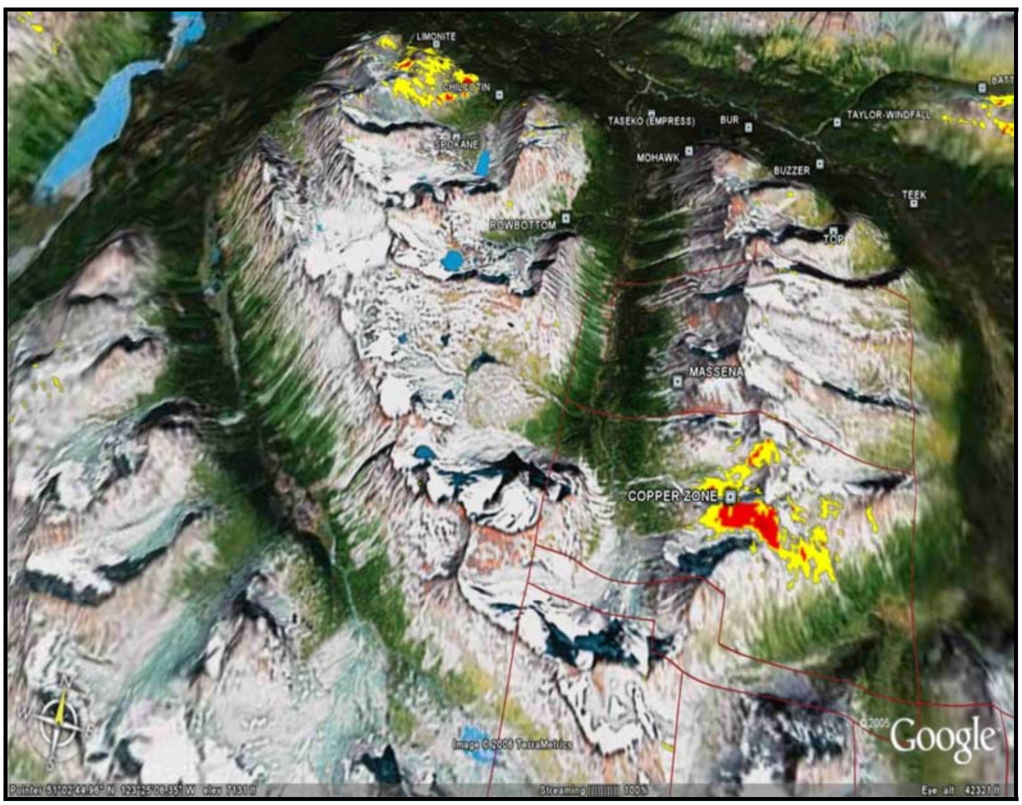


**Figure 9-5. Iron oxide, view to northwest over Copper Zone**

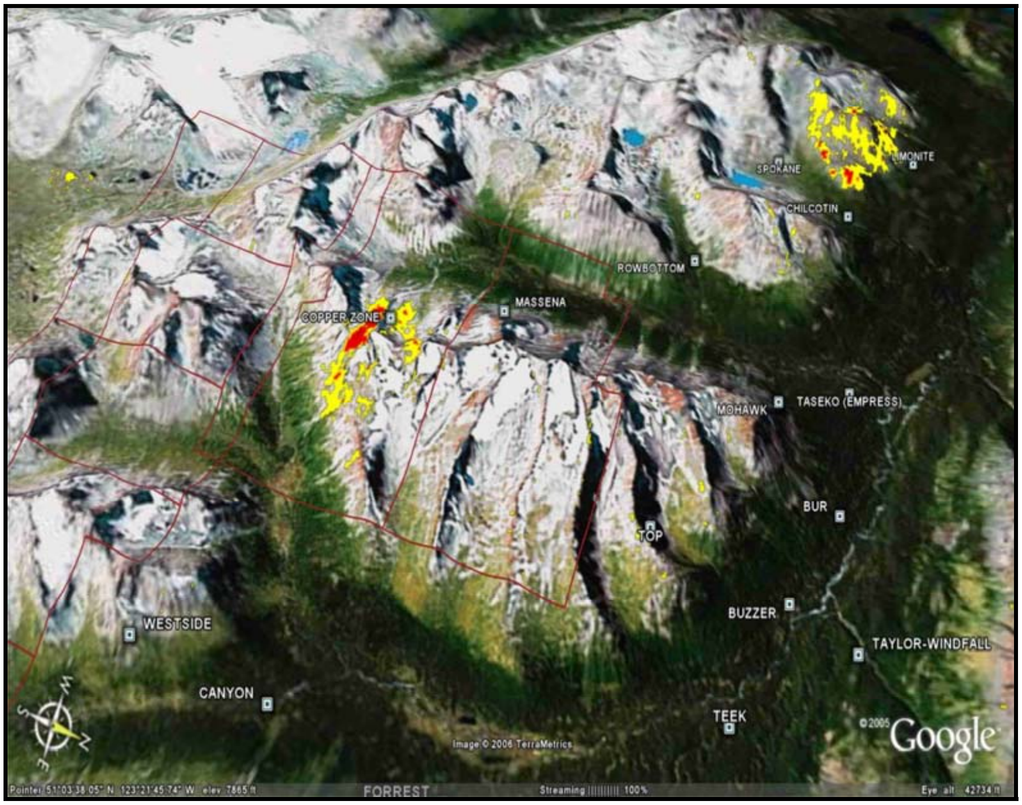

**Figure 9-6. Iron oxide, westerly view over Copper Zone**

## *9.3 Discussion*

The Tasco claim group contains two major spectral features that may be related to mineralization. The Copper Zone porphyry target located in the center of tenure #507507 is well defined by the distribution of iron oxide mineralization, most likely limonite. In addition, kaolinite is closely associated with this feature. This feature does appear as a classic gossan feature in outcrop.

The second major feature is a northwest trending linear alteration feature. The feature is about half a kilometer wide and at least 7 kilometers long. The most likely mineral associated with this feature is illite or possibly muscovite (sericite). No iron oxide minerals were detected in this feature and it likely appears as bleached zones in outcrop. This feature is likely an altered fracture system. This is likely an expression of the Tchaikazan Fault or a splay of this fault within the Coast Range Plutonic Complex. Examination of the Regional Aeromagnetic image on the MapPlace shows the position of this fault in the valley to the northwest and it can easily be traced directly into this feature. There is even an apparent offset in a magnetic high between the Rowbottom and Spokane occurrences that coincides well with the alteration zone. It may represent the mid-level portion of an epithermal vein system. The presence of illite and sericite (tentative identification) would suggest temperatures in the 200°C range for this mineral assemblage. The presence of anomalous gold geochemistry in the regional silt sediment geochemistry below this feature fits with this model. The presence of gold in several porphyry deposits in the area could also explain these silt geochemical values.

The spectacular alteration feature to the northwest of the Tasco claims at the Limonite MINFILE occurrence has been partially described as a Bog Iron deposit. It also contains a porphyritic intrusion as mapped by Glover et al. 1986 and also partially shown on the MapPlace geology layer. The clay mineral assemblage and distribution pattern are very interesting and suggestive of a circular alteration zone. But it is also possible that this pattern is the result of the topography interacting with the layered limonite deposit described in MINFILE. If this property were to come open it would be worth investigating.

# 10 Adjacent Properties

The most important deposit similar to the Copper Zone, in the area, is the Prosperity (MINFILE 092O 041, Figure 4-2) formerly Fish Lake (source: MINFILE). This deposit is at an advanced stage of development.

This calcalkaline LO4-type porphyry Cu ± Mo ± Au is in a quartz diorite stock that is intruding the sediments and volcanics of the Tyaughton-Methow Trough. It is located at the outer contact of the Trough similar to the Copper Zone, however it is on the east side of the Trough in the Intermontaine Belt rather than on the west side of the Trough and in the Coast Plutonic Complex. The Prosperity Deposit appears to have a more complicated structural geology and more intense alteration than the Copper Zone, although it is much better known and understood. The Prosperity deposit has several pre-mineralization and post-mineralization porphyry phases. The Copper Zone has not been researched enough to comment on porphyry phases.

The information on the Prosperity deposit may not necessarily be indicative of the mineralization on the Tasco property.

Due to the recent high metal prices, several exploration companies are re-focusing on the Taseko Lake area. During the site visit several prominent gossan zones could be seen from the helicopter in the area of the Tasco property (i.e. Spokane [MINFILE 092O 004], Rowbottom [MINFILE 092O 029], Buzzer [MINFILE 092O 038] and Taylor-Windfall [MINFILE 092O 028].

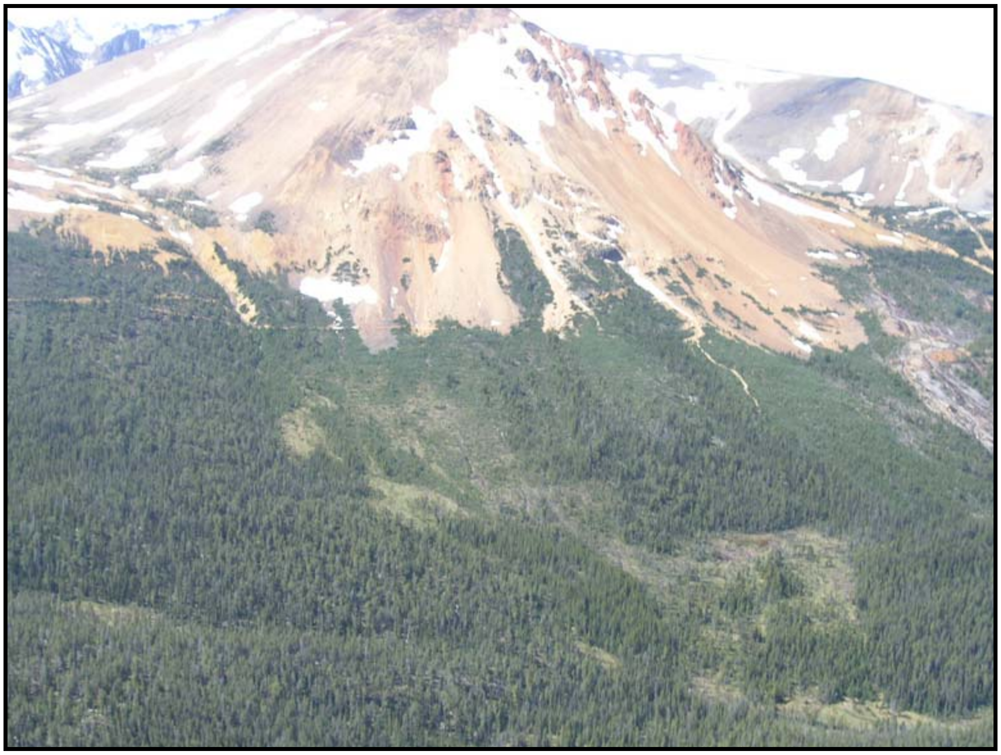

**Photo 10-1. Gossan zones at Spokane prospect, looking southwest**

Numerous core storage racks were observed at the Empress [MINFILE 092O 033] and Mohawk [MINFILE 092O 001] showings.

**Photo 10-2. Core storage facility for the Empress and possibly the Mohawk showings**

The 2007 exploration season should see other operators working in the region. For example, Galore Resources Inc. is a new player that has acquired 48,100 hectares of mineral claims in the Taseko Lakes area and is planning a $3 million financing mainly for exploration on those claims.

# 11 Interpretation and Conclusions

The historical exploration costs to-date on the Tasco property would conservatively be $550,000, in today's dollars. The exploration programs and reports on the Tasco property have generated several anomalies or targets which contribute to this being a property of merit. These targets require further exploration to define their true mineral potential.

## *11.1 Geochemical Anomalies*

There are three valid geochemical targets as described in a previous report (Payne, 1990).

### 11.1.1 Target 1 - The Central Zone Anomaly

Target 1 is a large copper and molybdenum coincident soil anomaly over the surface down slope of the Copper Zone gossan area (Payne, 1990). The wide-spaced soil sample grid shows that the anomaly has a down slope, wide dispersion pattern and has an apparent trend to the northwest. The soil grid did not cover the Copper Zone gossan area. The anomalies are open to the north. This anomaly and its source(s) have not been adequately defined with the present soil grid.

### 11.1.2 Target 2 - West Zone Anomaly

Target 2 is a group of soil anomalies (gold, molybdenum and tungsten) that overlap each other and were identified approximately 550 meters west of the Central Zone Anomaly, near the bottom of the valley (Payne, 1990). There is an apparent northwest trend to these anomalies. They appear to exhibit a zoning-type pattern. The anomalies are open to the north, south and west. The soil grid spacing is too coarse and too limited in extent to properly define this anomaly. A source for this anomaly has yet to be discovered.

### 11.1.3 Target 3 - Payne Zone Anomaly

Target 3 is a rock geochemical anomaly associated with a gossan zone that was identified approximately 600 meters south of the West Zone Anomaly. The soil grid did not cover this area although rock sample 193 returned encouraging results (3.6 ppm Ag, 186 ppm As and 67 ppb Au) as shown in Figure 6-1.

## *11.2 Copper Zone Prospect*

The Copper Zone Prospect (Deposit) has had 12 drill holes intersect it and one shallow trench. The holes appear to have been collared where good access was available rather than in a pattern that would facilitate the definition of the deposit. The deepest drill hole (81-2) ended in mineralization at 303.8 meters. Most of the other drill holes tested only shallow portions of the mineralized porphyry. Two drill holes were drilled at –45° further diminishing their depth of penetration into the deposit.

The deposit requires more diamond drilling. A drill pattern should be designed to properly define this porphyry deposit. Each drill hole should be extended to penetrate the entire deposit to depth. A grid-style pattern of ~150 meters should be adopted so that a block model mineral resource estimate can properly define the deposit. The outside limit of the deposit must be adequately delineated by drill holes.

## *11.3 Massena Showing*

This showing is on the northern claim (507495). It is a series of gold, silver and lead quartz veins in the quartz-hornblende diorite. It appears to have only been examined by federal and provincial geological survey parties (MINFILE 092O 067). Exploration companies may have either overlooked the showing or not considered that it had enough mineral potential to warrant work. Either way, this showing should be investigated and reported on.

# 12 Exploration Recommendations

The Tasco property is a property of merit. It is recommended that a success-contingent phase-type exploration program of the entire property should be initiated. The Phase One objectives would be to:

- Complete a reconnaissance/prospecting of the property to identify all mineral potential targets.
- Undertake a detailed geochemical survey over all known and newly identified targets.
- Undertake an Induced Polarization (IP) survey combined with a ground magnetometer survey to fully define the extent of the sulphide mineralization and related magnetic features comprising the Copper Zone.
- A preliminary diamond drilling program of at least 1,000 meters to further test the central core area of the Copper Zone deposit. This drilling can be cared out independent of the IP survey.

These objectives will provide the data necessary to plan and complete the Phase II program.

Phase II would combine trenching (if warranted) and periphery and detailed diamond drilling of the Copper Zone, designed to completely define the dimensions of this deposit, as well as drill testing other targets defined by Phase I of the program.

## *12.1 Phase I Exploration Program*

There are many interesting anomalies and showings that have not been adequately defined.

A reconnaissance and prospecting survey of the entire property may discover new mineralized porphyry stocks, other mineral showings and gossan zones. All data points should have their coordinates surveyed by GPS and plotted on a digital map database in UTM NAD83 coordinates. It will be important to prospect the strong kaolinite and illite anomalies (Figures 9-1 and 9-3), indicated from the 2006 Aster Image processing, that are located west and south of the Copper Zone.

A QA/QC field protocol should be implemented for all samples (soil, rock and core). The protocol should include duplicate samples, standard samples and blank samples. Two different certified laboratories should be used in addition to duplicate samples to check analytical control. A chain of custody procedure should be established as part of this program.

The known mineral showings (Copper Zone, Massena) should be accurately mapped and sampled. Surface sampling should be initiated where possible and then followed up by either hand-dug or excavator-dug trenches, if possible. The Massena showing may require a tote road to be constructed to gain vehicle access, if warranted. All data points should have their coordinates surveyed by GPS and plotted on a digital map database in UTM NAD83 coordinates.

The Payne Zone gossan should be accurately mapped and sampled with either hand or excavator-dug trenches. All data points should have their coordinates surveyed by GPS and plotted on a digital map database in UTM NAD83 coordinates.

A close-spaced grid (i.e. 50-meter square spacing) should be located, centered on the geochemical anomalies (Central and West Zones) and utilizing the 1990 grid if it still exists. Each station should be surveyed by a GPS in UTM NAD83 coordinates and recorded in a digital database.

The 200 by 50-meter 1990 soil grid should be extended to close off all anomalies and cover the known gossan zones. A 200 by 50-meter soil sample grid should be established over the Massena Showing to help delineate its mineral potential. Any new showings and gossan zones discovered during the reconnaissance work should have adequate 200 by 50-meter soil sample grids established over them to assist in delineating their mineral potential. All geochemical sample stations along these grids should be surveyed by a GPS in UTM NAD83 coordinates and recorded in a digital database.

The IP survey over the Copper Zone should be pole-dipole-type. The survey lines could be run north-south to take advantage of the topography but due to the apparent northwest trend of the deposit, it is recommended that lines run northeast-southwest. The main baseline should be 2 kilometers long and centered over hole 81-2, which is the deepest mineralized hole (i.e. 1 kilometer north and 1 kilometer south of hole 81-2). The dipole spacing should be 100 meters and the pole spacing should be n = 1 to 6. This configuration should give a good resolution to a 200-meter depth. Initially there should be 2 two-kilometer cross lines centered over hole 81-2 to provide an indication of the general geometry of the mineralized shells (copper and pyrite) before establishing the full grid. It is anticipated that 11 lines (22 kilometers) would cover the mineralized shells although the lines may have to be extended to completely cover the pyrite halo. A ground magnetometer survey should be completed at the same time over the IP grid as an aid to better defining subsurface geology alteration and mineralization patterns. The property geologist should be on site during the geophysics program so that survey modifications can be made in a timely manner. The IP survey’s greatest benefit will be in delineating the propylitic alteration zone and the periphery of the mineralization in the Copper Zone deposit.

A short, preliminary diamond drilling program can be done independent to the IP survey. This short drill program will be designed to define the central core of the Copper Zone deposit. This program will assist in justifying a larger and more expensive drill program in Phase II. Drilling will focus on potassic, phyllic and argillic alteration zones in the central core of the porphyry deposit where the concentration of the copper mineralization tends to be highest. The IP survey results are not needed for this drilling to take place due to the historic drill data available; the visual pyrite-rich mineralized halo present and the type of the deposit being explored for (i.e. copper porphyry). A good guide for the drilling proposed is the recent Aster data (Appendix A) that clearly shows iron oxide, kaolinite and illite alteration on the Copper Zone.

The Phase I drilling should be spaced at ~300 meters (from existing holes) to help define the Phase II detailed grid drilling pattern which will probably be ~150 meter spacing. Each drill hole should be designed to penetrate the entire deposit to depth. All holes should be drilled at 90° to assist in future block modeling.

## *12.2 Phase II Exploration Program*

Contingent on the success of the Phase I program, a second detailed drill program should be initiated to further delineate the total extent of the subsurface mineral potential of the Copper Zone deposit. Utilizing the IP survey and the Phase I central drill results, the Phase II drilling will be designed to determine the Copper Zone deposit's limits. Each drill hole should be designed to penetrate the entire deposit to depth. All holes should be drilled at 90° to assist in future block modeling. A grid-style pattern of ~150 meters should be adopted so that a block model mineral resource estimate can properly define the deposit. The outside limit of the deposit must be adequately covered with drill holes. Historical drill holes could be used as intermediate holes, if core is still available, to reduce the number of holes required. A total of 4,000 meters of drilling has been allocated for Phase II (Copper Zone) exploration.

The Phase II part of the program would also include initial drilling of other targets defined in the Phase I program. A total of 1,000 meters of drilling has been allocated to test other targets.

## *12.3 Exploration Estimated Costs*

The costs for the Phase I program are documented in Table 12-1:

***Table 12-1. Phase I Exploration Costs***

| ***Description*** | ***Cost($ Cdn)*** |
|---|---:|
| Grid preparation | 10,000 |
| Analytical costs (1000 samples) | 15,000 |
| IP survey | 44,000 |
| Magnetometer survey | 5,000 |
| Site preparation, road building and trenching | 50,000 |
| Supervision (geologist and 2 helpers) | 30,000 |
| Room and Board | 8,000 |
| Vehicle expenses | 10,000 |
| Preliminary Drilling - Copper Zone – 1,500 m @ $250/m all in | 375,000 |
| Bonding | 10,000 |
| Reclamation | 5,000 |
| Supplies, freight, sample shipments, communications | 8,000 |
| Compilation report | 15,000 |
| ***Subtotal*** | 585,000 |
| Contingency (~10%) | 58,500 |
| ***Total*** | ***643,500*** |

The cost for the Phase II exploration is summarized in Table 12-2:

***Table 12-2. Phase II Exploration Costs***

| ***Description*** | ***Cost($ Cdn)*** |
|---|---|
| Drilling - Copper Zone – 4,000 m @ $250/m all in | 1,000,000 |
| Drilling – Other Targets – 1,000 m @ $250/m all in | 250,000 |
| Road building and trenching | 150,000 |
| ***Total*** | ***1,400,000*** |

# 13 Statement of Costs

| | |
|---|---|
| Aster Image Processing (Cal Data Ltd.) | $4,060 |
| Helicopter and Land Transport | $1,890 |
| Trim/Ortho & Supplies | $1,000 |
| Reporting (J. Chapman & D. Makepeace) | $ 900 |
| **Total** | **$7,850** |

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# 15 Certification of Authors

**John A. Chapman**
**David K. Makepeace**

# JOHN A. CHAPMAN
# CERTIFICATE OF QUALIFICATION

I, John Arthur Chapman of the City of Surrey, Province of British Columbia, Canada, do hereby certify as follows:

1. I am a mining engineer residing at #30 1725 Southmere Cr., Surrey, British Columbia, V4A 7A7;
2. I graduated with honours in Mining Technology from the British Columbia Institute of Technology, June 1967;
3. I graduated with honours in Mining Engineering (B.Sc.) from the Colorado School of Mines, January 1971;
4. I am a Professional Engineer registered in the Province of British Columbia, Canada, since 1973;
5. I am a Fellow of the Canadian Institute of Mining and Metallurgy;
6. I have practised by profession continuously since 1973 in Canada, United States and Philippines;
7. Since 1983 I have provided services to the mining industry as the Principal of J.A. Chapman Mining Services;
8. Prior to 1983 I served five years with Manalta Coal Ltd., Canada's largest coal company, as Operations Manager then as Vice-President and General Manager. Prior to that I served eleven years with Placer Dome Inc. in engineering, supervision and management at large open-pit copper and molybdenum mines;
9. I personally visited the Tasco property in 2006;
10. I am not independent as I am a 50% owner of the Tasco property.

Dated at White Rock, British Columbia this 27th of January 2007.

John Arthur Chapman, B.Sc., P.Eng., FCIM

# DAVID K. MAKEPEACE
# CERTIFICATE OF QUALIFICATION

I, David Makepeace, M.Eng., P.Eng., do hereby certify that:

1. I am principal of:

   Geospectrum Engineering
   2588 Birch Street
   Abbotsford, British Columbia, Canada V2S 4H8.

2. I graduated with a Bachelor of Applied Science degree in Geological Engineering from Queen's University at Kingston, Ontario in 1976. In addition, I have obtained a Master of Engineering degree in Environmental Engineering from the University of Alberta in 1994.

3. I am a member of the:

   - Association of Professional Engineers and Geoscientists of British Columbia
   - Association of Professional Engineers, Geologists and Geophysicists of Alberta.

4. I have worked as a geological engineer for a total of 28 years since my graduation from university.

5. I am an author of all sections of this report titled "Assessment Report, Aster Image Analysis, Tasco Property" and dated January 27, 2007 (the "Report").

6. I visited the Tasco property on July 4, 2006.

7. I have compiled data on the Tasco property in early 2006 and completed a Technical Report on the Tasco property for KGE Management Ltd. and John A. Chapman (owners), dated November 30, 2006.

8. I am not aware of any material fact or material change with respect to the subject matter of the Report that is not reflected in the Report, of which the omission to disclose would make the Report misleading.

9. I am independent of both the owners of the property (Gerald G. Carlson and John A. Chapman) applying all the tests in section 1.5 of NI 43-101.

Dated at 27 Day of January 2007

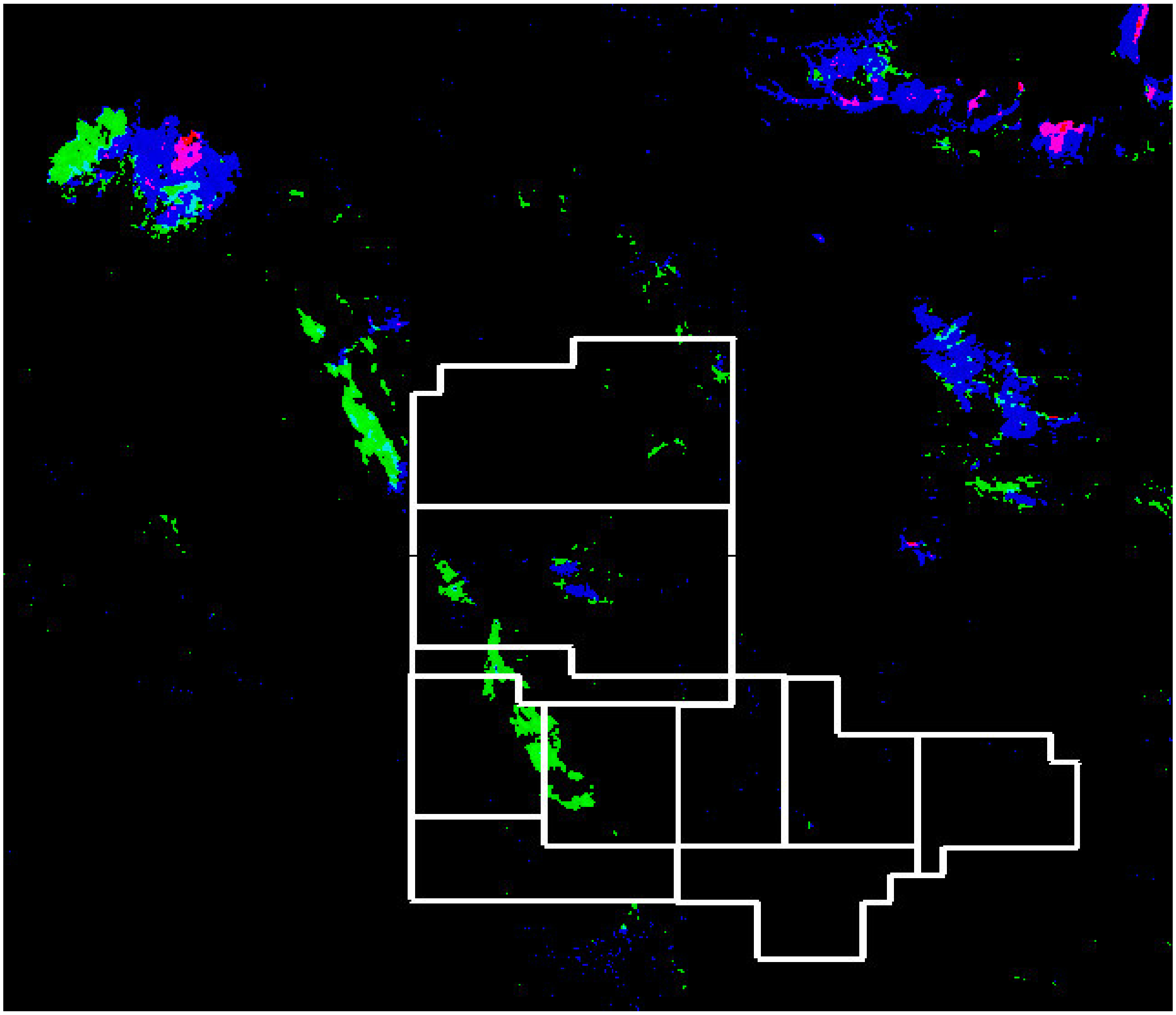
PROFESSIONAL
PROVINCE OF
D. K. MAKEPEACE
BRITISH
COLUMBIA
ENGINEER

David K. Makepeace, M.Eng., P.Eng.

# APPENDIX A

# ASTER IMAGE ANALYSIS

# ASTER Image Analysis
# TASCO Claim Group



**Prepared for:**

John A. Chapman
KGE Management Ltd.

**Prepared by:**

Ward E. Kilby, PGeo.
Cal Data Ltd.
November 28, 2006.

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# 1.0 Executive Summary

Investigation of ASTER imagery and its potential to identify geologically significant features on and around the TASCO mineral claims was undertaken at the request of John Chapman. A search was completed for the best available ASTER image and it was acquired. Several routines were run on the imagery to correct for cross-talk problems in the sensor, atmospheric effects and spatial accuracy. The resultant orthorectified relative reflectance data set was then examined with a number of multispectral techniques to identify mineral assemblages that could be used in the search for mineralization. Three styles of analysis were used: simple band combinations; a principal component analysis technique referred to as the Crosta Method; and Spectral Angle Mapper. Two major spectral features were identified, a major northwest trending linear structure and a spectral feature associated with the Copper Zone occurrence.

The digital elevation model generated during the orthorectification process was used in an attempt to identify structural features that could be controlling factors in the location of mineralization. In addition the digital elevation model constructed from the Shuttle Radar Topographic Mission was also obtained. A number of hill shaded views were generated from both DEMs to assist in structural interpretations

The results of the image analysis are presented as stand alone image maps in this report, included as standard georeferenced image files in the appendix and included in a KML file (also in appendix) that can be visualized with the popular Google Earth viewer. The KML file is an integral part of this report and it contains additional data sets essential to the understanding and interpretation of the image analysis results.

# 2.0 Image Analysis

## 2.1 Image Acquisition

A search of the ASTER data available on the MapPlace and new data soon to be placed on the MapPlace revealed that the TASCO property was not covered by any of the imagery. Therefore the required image was identified and purchased through the Land Processes Distributed Active Archive Center operated by the United States Geological Survey (USGS) and NASA. When the order was filled the imagery was downloaded from LPDAAC through their FTP facility. This raw data is in HDF (Hierarchical Data Format) format and presented in Appendix 1. The image was collected on August 1, 2004 at about 1:24 pm. The image was centered about 51.042° north and 123.51° west.

## 2.2 Image Pre-processing

Prior to any serious analysis the raw ASTER imagery was corrected spatially and spectrally using three routines. Cross-talk is the phrase used to describe the problem of some photons being recorded in the wrong band. This problem occurs due to a design problem in the sensor that allows some photons to escape from one sensing crystal and be picked up by a neighbouring sensing crystal. The extent of this cross-talk has been determined and a software routine has been made available by the Japanese Space Agency to correct the problem. The raw data was processed with this routine prior to any other procedure.

To be accurately located on the ground the effect of the viewing angle and topography was corrected. Orthorectification was performed using the AsterDTM (SulSoft, 2006) software that is an add-on to the ENVI (ITT, 2006) image analysis software package used during this project. This software generates a digital elevation model from two of the ASTER bands and uses this model and the spacecraft's position to accurately locate each image pixel on the ground. The coordinates of the orthorectified imagery are in UTM NAD 83 Zone 10 projection.

The ASTER image data was obtained from the Land Processes Distributed Active Archive Center (LPDAAC) as 'at sensor radiance' values. That is, the measurements are of the amount of electromagnetic energy that instrument on the spacecraft sees. This energy can be energy reflected back into space after hitting the ground or energy that is backscattered by the atmosphere. Energy is absorbed by ground features and the atmosphere.

Atmospheric corrections were performed on the VNIR (Visible and Near Infrared) and SWIR (Short Wave Infrared) bands using the ACORN5 program (Atmospheric CORrection Now) (ImSpec LLC, 2006). This program performs a pixel-by-pixel correction of the image values by removing the effect of water vapour and other gases in the atmosphere using the MOTRAN4 technology. ASTER imagery does not contain enough information to calculate the amount of water vapour found within an image, so an estimated value of 15 millimetres of atmospheric water was used for the image. The ground elevation is required as input to accurately estimate the thickness of atmosphere above the target area. The value of 2200 metres was used for the correction as this was the elevation of most of the rock exposure at the TASCO claims. The atmospheric correction changes the image values from radiance to relative reflectance.

The corrected ASTER image data are contained in Appendix 2. The image is stored in ENVI's bil format which can be read by many common GIS and image analysis packages.

## 2.3 Image Analysis

ASTER imagery contains 14 spectral bands that can be used for spectral analysis and one band that is back-looking that can be used to generate a stereo view. The 14 bands are recorded by 3 sensors that make up the ASTER instrument package. The VNIR (Visible and Near Infrared) instrument records bands 1-3 and they have 15 metre ground resolutions. The SWIR (Short Wave Infrared) instrument records bands 4-9 at a 30 metre ground resolution and the TIR (Thermal Infrared) instrument records bands 10-14 at a 90 metre ground resolution. When an analysis requires bands from several of these sensors the larger ground resolution data is sub-sampled to the 15 metre level.

Several methods of analysis were used with the ASTER image in an attempt to identify spectral patterns that could be related to geological features. A wide variety of band combinations have been used by workers around the world to identify different minerals and groups of minerals in varied environments. Four band combinations have been used in the Image Analysis Toolbox (IAT) on the MapPlace as a first pass attempt to locate some common minerals associated with alteration. Of the four band combinations used on the MapPlace only the Iron Oxide ratio of (B2/B1) proved to be useful during this study.

Another technique referred to as the Crosta method utilizes principal components generated from selected ASTER bands to identify a number of minerals that can indicate alteration features. In this study 5 different Crosta style Principal Component Analyses (PCAs) were performed in an effort to map the occurrence of alteration minerals. The analysis for silica content based on the TIR bands which have a 90 metre resolution did not provide useful information and is not presented in this report. The fourth principal component turned out to show patterns of interest that could be related to alteration minerals in the case of the other four sets of ASTER bands. The band combinations used in the PCAs were:

| | |
|---|---|
| Alunite | (B1, B3, B5, B7) |
| Illite | (B1, B3, B5, B6) |
| Kaol & Smectite | (B1, B4, B6, B9) |
| Kaolinite | (B1, B4, B5, B7) |

Silica (B10, B11, B12, B13, B14).

The results of the Crosta style analysis are labeled with the target mineral(s). As will be seen below in some cases the mineral highlighted by the analysis does not match the label used. But these labels have been associated with the band combinations and are retained here simply for identification. The coarse nature of the ASTER bandwidth makes it very difficult and impossible in some cases to identify a particular mineral with any certainty. But these band combinations have proven very useful in identifying features with mineral compositions that are unique relative to their surroundings.

Spectral Angle Mapping (SAM) is an analysis technique commonly used with hyperspectral data and to a lesser extent with multispectral data such as ASTER. This technique calculates the spectral angle between a known spectrum and the spectrum at each ASTER image pixel. This analysis was run for the same set of potential alteration minerals used in the Crosta analysis. Spectra for each mineral analyzed were obtained from the USGS Spectral Library and resampled to represent the spectra that would be recorded by the ASTER instruments. A spectral angle of 0.0° would mean that the image spectra perfectly matched to the library spectra. As the angle increases the two spectra become more dissimilar. The spectral angle values provide a useful measure of similarity to the target mineral that is very reproducible and based solely on the information from each pixel so there is no external influence on the calculation from elsewhere in the image as is the case with analysis such as the Crosta technique.

In addition, some simple preliminary images were constructed from 3 bands, each assigned a red, green or blue value, and have been used to highlight band differences and possibly geological features. These images are enhanced with a technique called ‘decorrelation stretching’ that accentuates the differences between the band combinations represented by the image pixels.

When features of interest are located on the image an attempt has been made to identify the major mineral or group of minerals that are being highlighted. This is an estimate of the mineral present as no ground investigation has been performed. By comparing the ASTER spectra with the laboratory spectral of the expected mineral some degree of confidence can be obtained. But, even if the mineral identification is not correct the pattern present in the image may still have significance to the interpretation of the geology and mineralizing history. The USGS Mineral Spectral Library was sampled with the ASTER sensor wavelengths to obtain the spectra patterns ASTER imagery would provide. Figure 1a is an example of the laboratory spectra for some of these minerals and figure 1b shows the corresponding spectra that would be collected by ASTER.

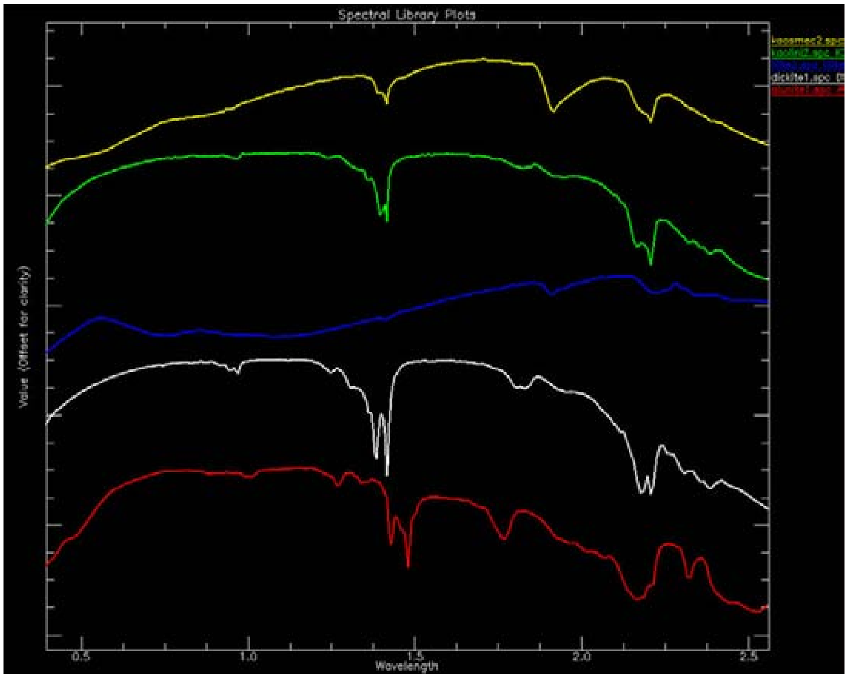


Figure 1a. Spectra for 5 minerals from the USGS Spectral Library. The displayed spectra from top to bottom are Kaolinite/Smectite, Kaolinite, Illite, Dickite and Alunite.

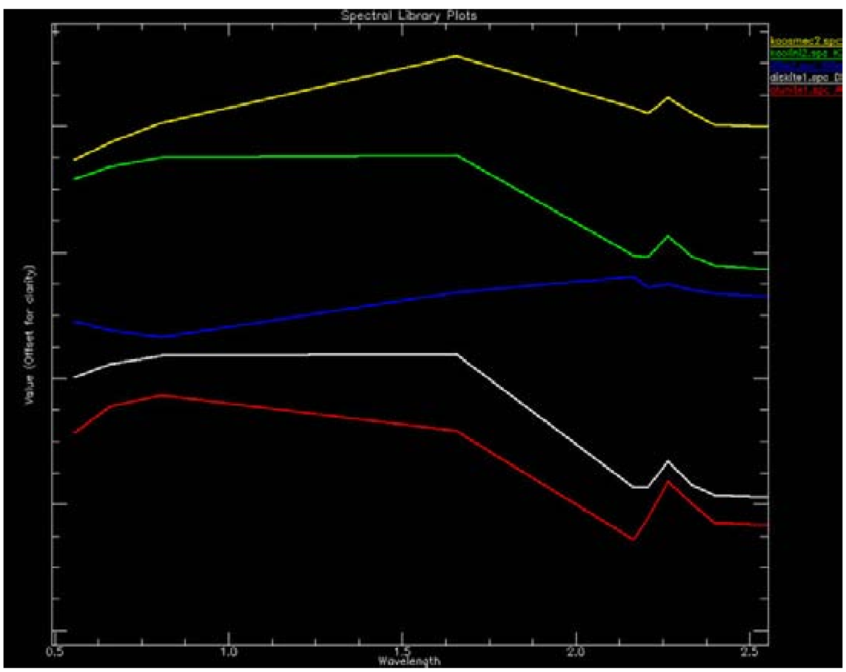


Figure 1b. Spectra for the same five minerals displayed in figure 1a as would be collected by the ASTER sensors from the VNIR and SWIR ranges. The sharp inflection points in the spectrum lines mark the position of the ASTER band centres.

## *2.3.1 IRON Minerals*

FE-Oxide mapping was performed by a simple band ratio. It was the only ratio or simple band combination that proved informative of the four used in the IAT of MapPlace. For the other minerals mentioned above the Crosta and SAM methods proved much better and these results are presented below. VNIR Band 2 over Band 1 samples a well known iron spectral feature. Figure 2a shows the spectra for three common iron oxide minerals that could be expected to be present in gossans such as are present in the project region along with the positions of the two ASTER bands. Both bands 1 and 2 are in the visible range and as such one would expect to be able to see these iron-stain features with the naked eye. But this analysis is valuable in that it provides a map of the mineral distribution and indicates the relative abundance of the iron rich minerals at each pixel location. The pixel size for this analysis is 15 metres as bands 1 and 2 are from the VNIR sensor and the data used was atmospherically corrected. Figure 2b displays the expected ASTER spectra for these three minerals.

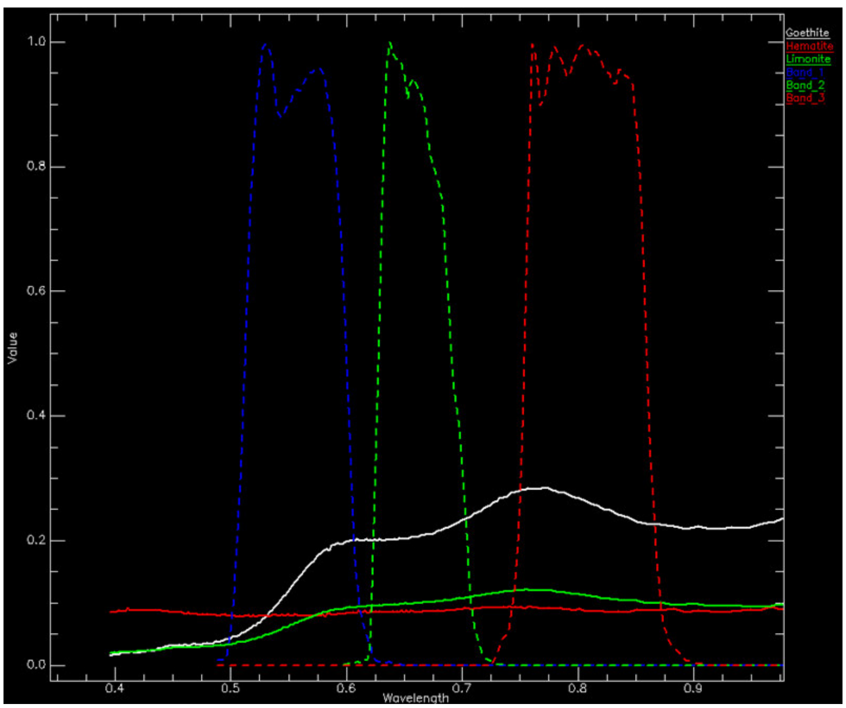


Figure 2a Plot of the laboratory spectra for three Fe-Oxide minerals and the locations of ASTER bands 1 (blue), 2 (green) and 3 (red) dashed lines.

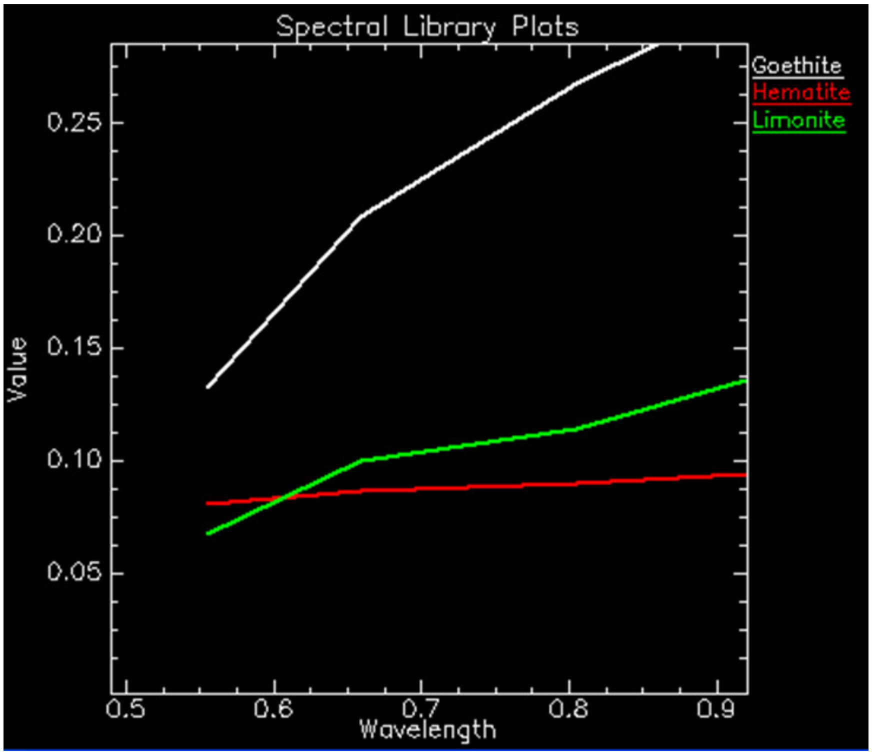


Figure 2b. Plot of the ASTER spectra that would be obtained from the laboratory spectra in 2a.

The complete ASTER image was processed with this band ratio. Then the image was density sliced to highlight the areas of significantly high B2/B1 ratios (Figure 3). One significant area is highlighted on the TASCO claim group. Figure 4a contains a close up view of this feature that is centred in tenure # 507507 associated with the Copper Zone MINFILE occurrence. The feature forms a semi circular map structure. A similar near circular structure is present nine kilometers to the northwest at the Limonite MINFILE occurrence. These two structures correspond with visible gossan areas and verify the technique is accurately identifying iron bearing minerals. This image provides a useful display of where all such mineralization can be found within the claim group.

An attempt was made to identify the iron mineral most likely present on the TASCO feature. A single pixel's spectrum was compared with the laboratory spectra for several possible candidate minerals. Figure 4b shows the pixel selected for this examination and Figure 5 contains the collected spectrum. By comparing the reflectance differences between band 1 and band 2 with the difference between band 2 and band 3 the best fit with the three candidate minerals in Figure 2B is limonite. Limonite is the most commonly cited mineral in the gossan ring structures of porphyry copper deposits.

It must always be remembered that these results show only the ratio of B2/B1 and other substances than FE-Oxides could produce ratios in the same range. A good example of this is the clouds mapped in the northeast portion of the image. By checking that the high ratio values overlay rock outcroppings one can be reasonably sure that the results are showing iron minerals.

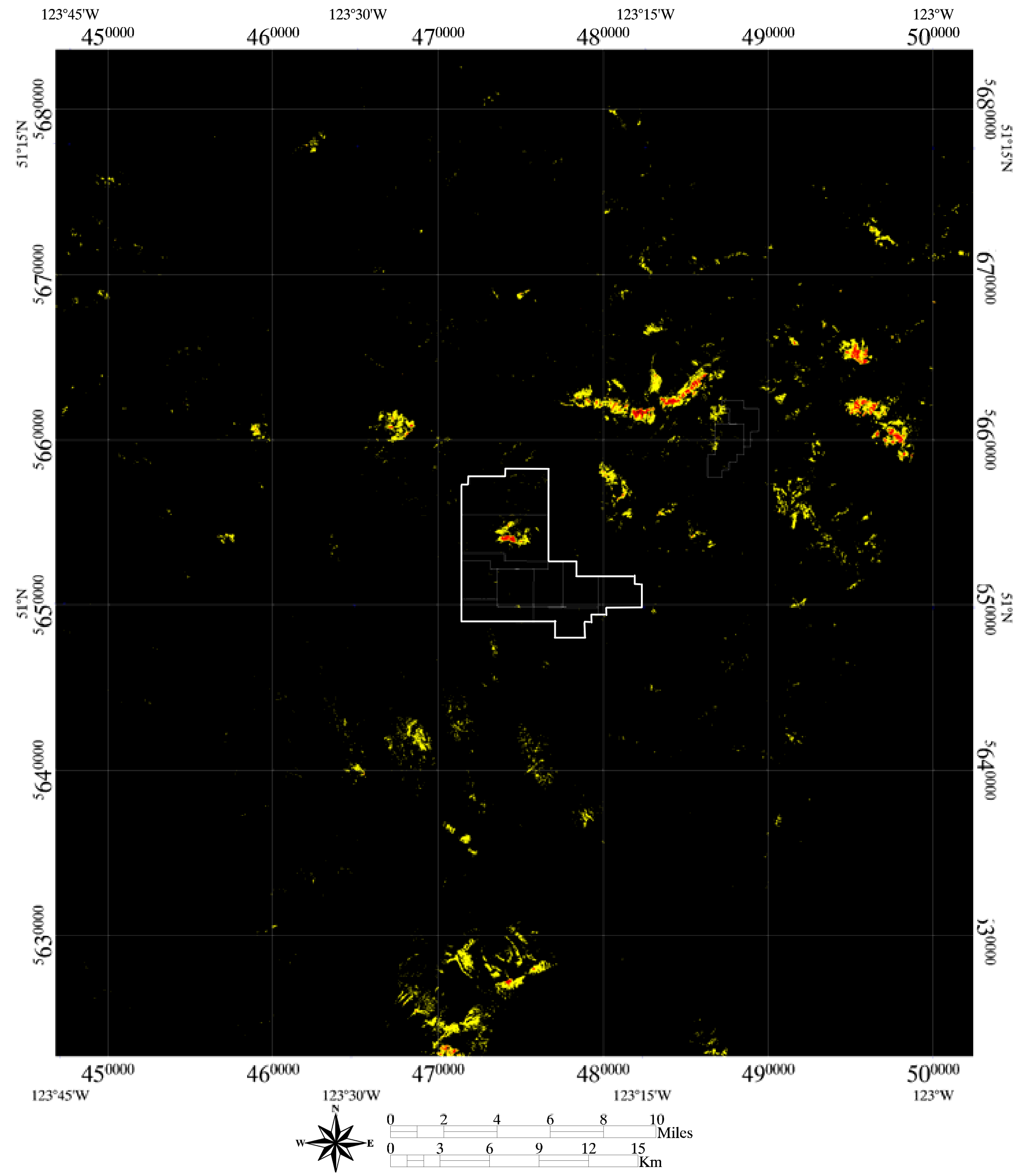


Figure 3. Map view of the FE-OXIDE ratio image. Projection is in UTM Zone 10, NAD 83. TASCO claims are outlined in the centre of the map.

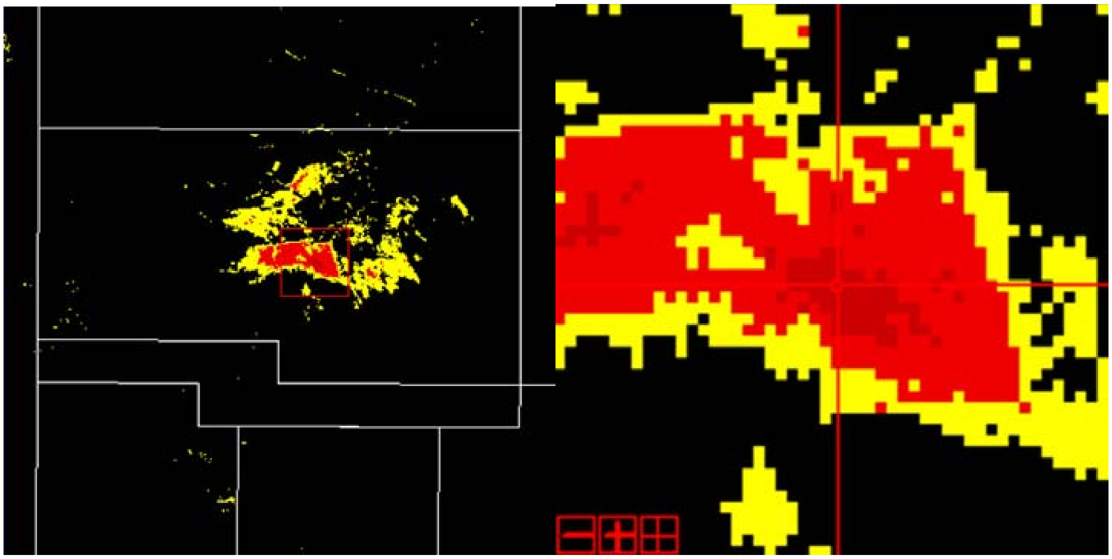

Figure 4. Left image (4a) shows the iron structure in Tenure # 507507 at the Copper Zone MINFILE occurrence. The right image (4b) shows the location of the pixel (crosshairs) from which the spectrum in Figure 5 was collected (474800 E, 5653993 N).

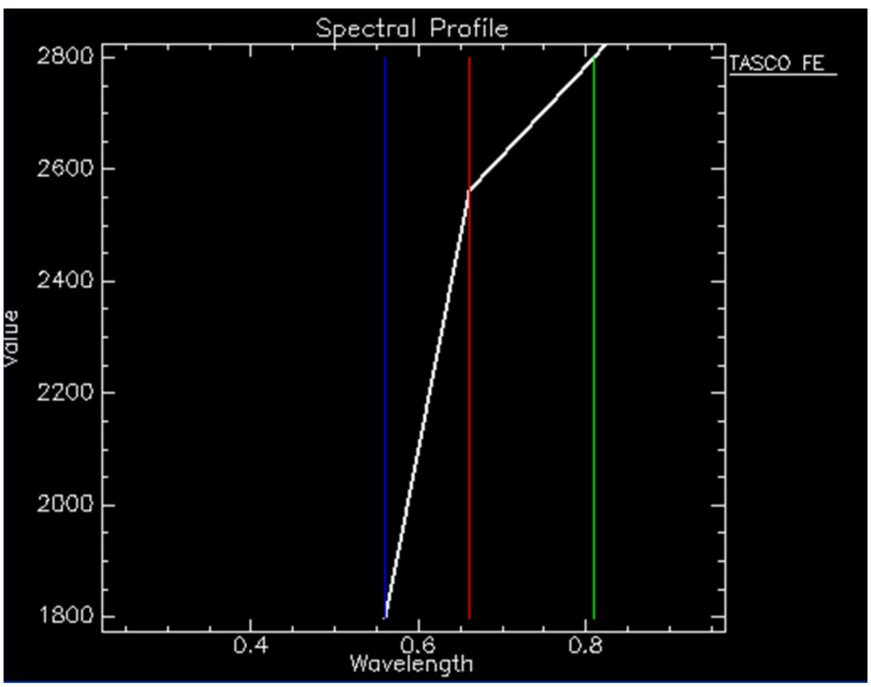


Figure 5. Spectrum from a single pixel. This spectrum is only for the three bands in the VNIR region of the electromagnetic spectrum. Band centres are marked by the three vertical coloured lines.

## *2.3.2 ALUNITE Crosta Evaluation*

Four ASTER bands were used in a principal components analysis in an attempt to identify the alteration alunite. The bands 1, 3, 5 and 7 were used for this process as they were the bands that captured the major alunite spectrum features (Figure 6).

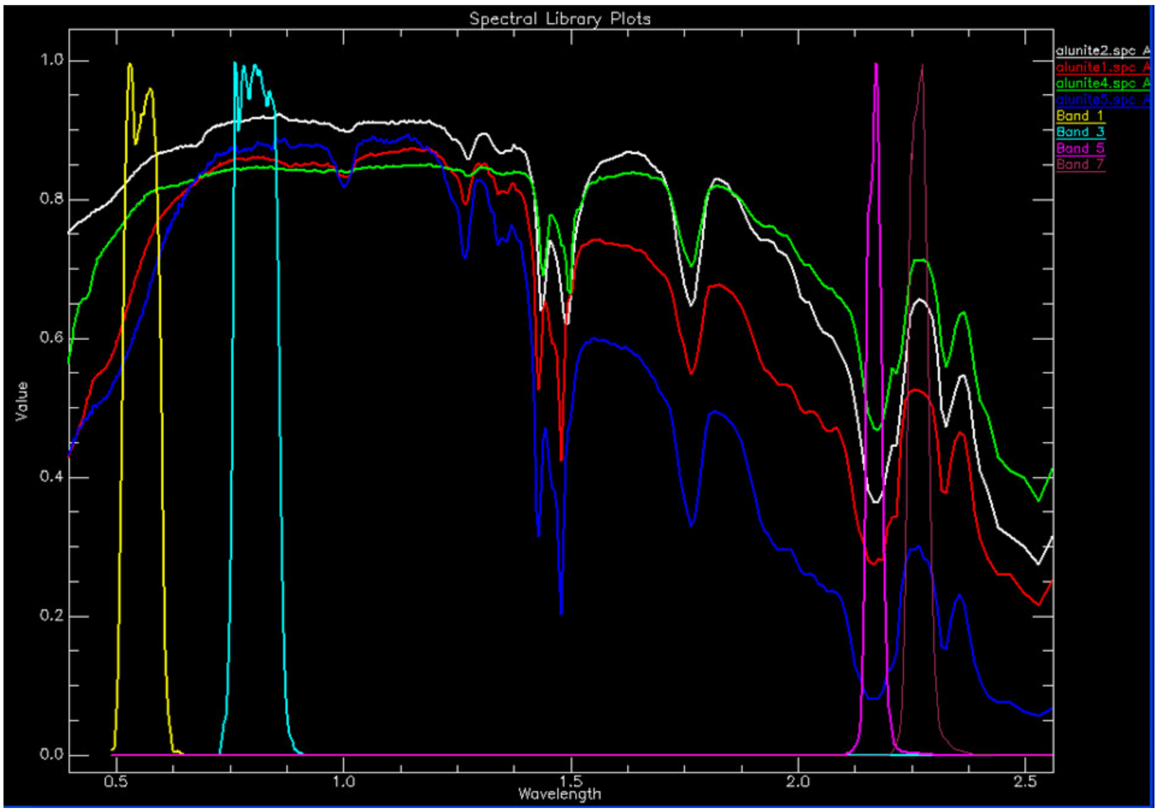


Figure 6. This plot shows four alunite spectra from the USGS Spectral Library and the locations of the 4 ASTER bands 1, 3, 4 and 7 used in the Crosta analysis.

The analysis worked well and identified some potential alunite mineralization within the image but none within the TASCO claims. The Limonite MINFILE occurrence to the northwest of the TASCO claims contained a good distribution of potential alunite mineralization associated with the suspected limonite (Figure 7). A sample spectrum from the ASTER image was compared to alunite spectrum from the USGS Spectral Library. The comparison was quite good (Figure 8) and significantly different than other potential candidates (Figure 1b).

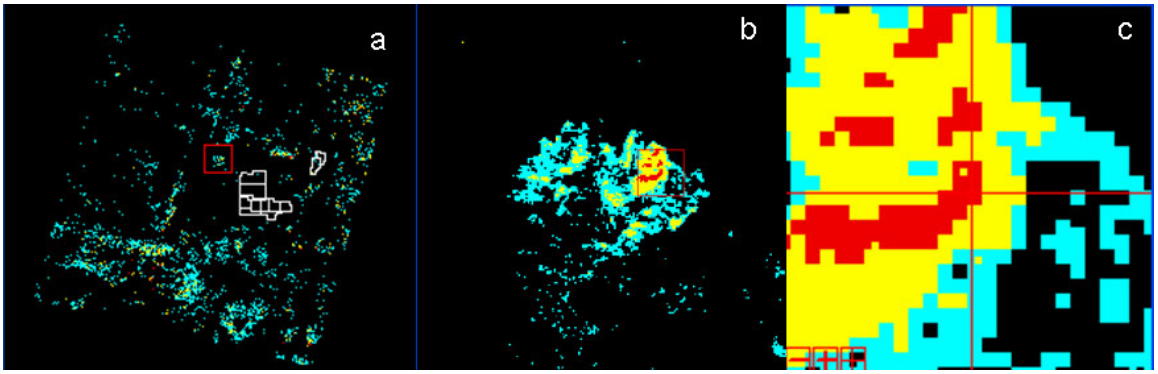


Figure 7. a) Alunite image map for the entire ASTER image, note TASCO claims and the red box highlighting the Limonite MINFILE occurrence. b) The Limonite MINFILE occurrence alteration zone showing the results of the alunite mapping. c) A close-up of a portion of (b) showing the location of the alunite spectrum collection (at crosshairs).

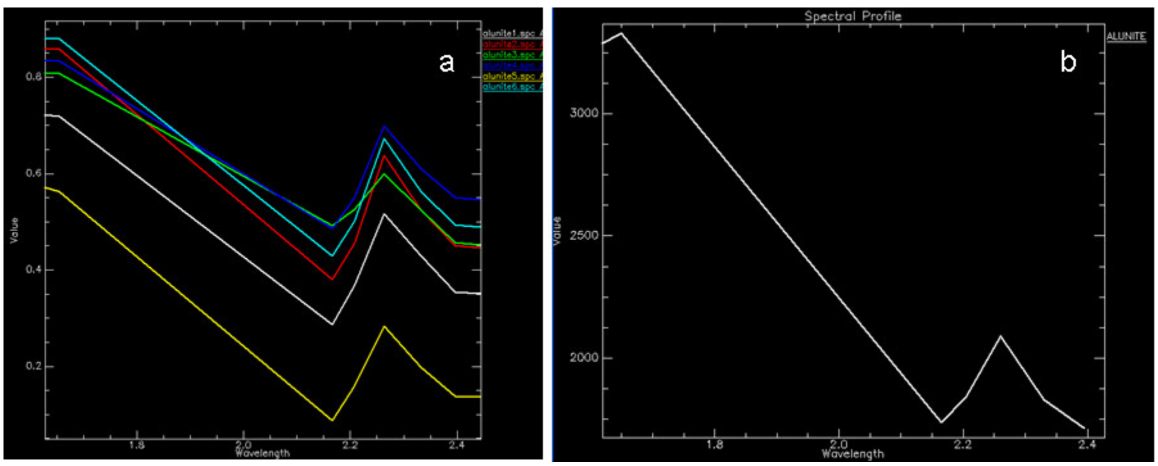


Figure 8. a) Six alunite spectrum from the USGS Spectral Library. b) the collected spectra from the Limonite MINFILE occurrence that was indicated as high alunite from the PC analysis.

## *2.3.3 ILLITE Crosta Evaluation*

Illite was assessed using the Crosta technique by performing the analysis with ASTER bands 1, 3, 5 and 6. These bands were used as they were located over the major distinctive spectral features of the Illite spectrum (Figure 9).

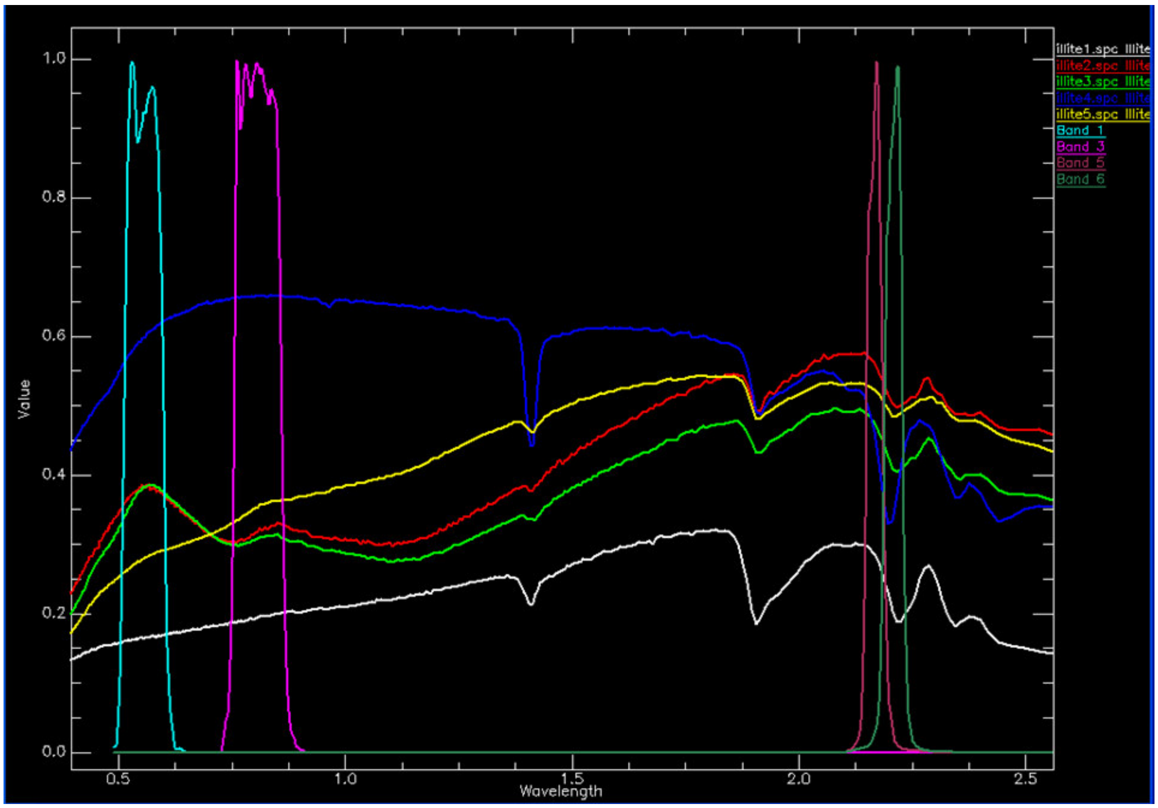


Figure 9. Plot showing five Illite specta from the USGS Spectral Library and the locations of the four ASTER bands used in the illite analysis.

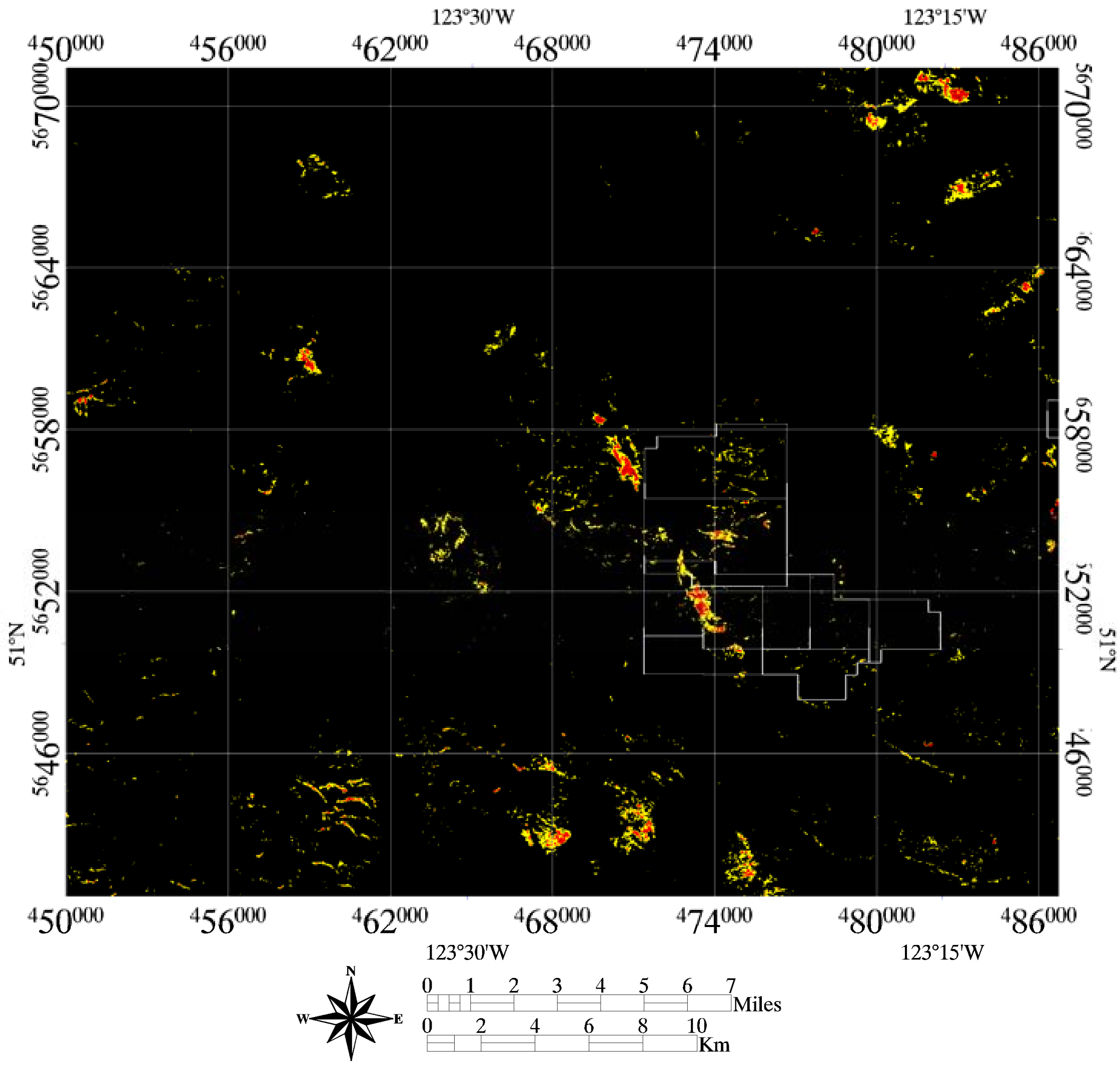


Figure 10. Map display of the results of the Illite analysis. Map view covers only a portion of the ASTER image, Note the TASCO claims. Note the linear structure extending from the TASCO claim group to the northwest.

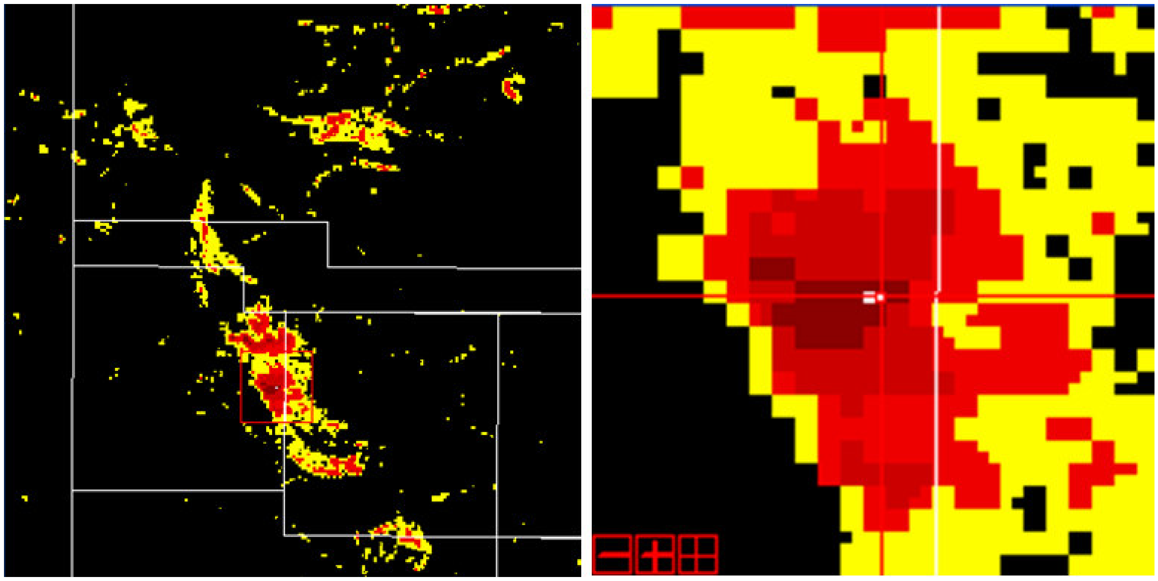

Figure 11. Location of potential illite mineralization along northwest trending feature within the TASCO claims. Right image shows the location of the pixel used to collect a spectrum to test the mineral identification (see Figure 12).

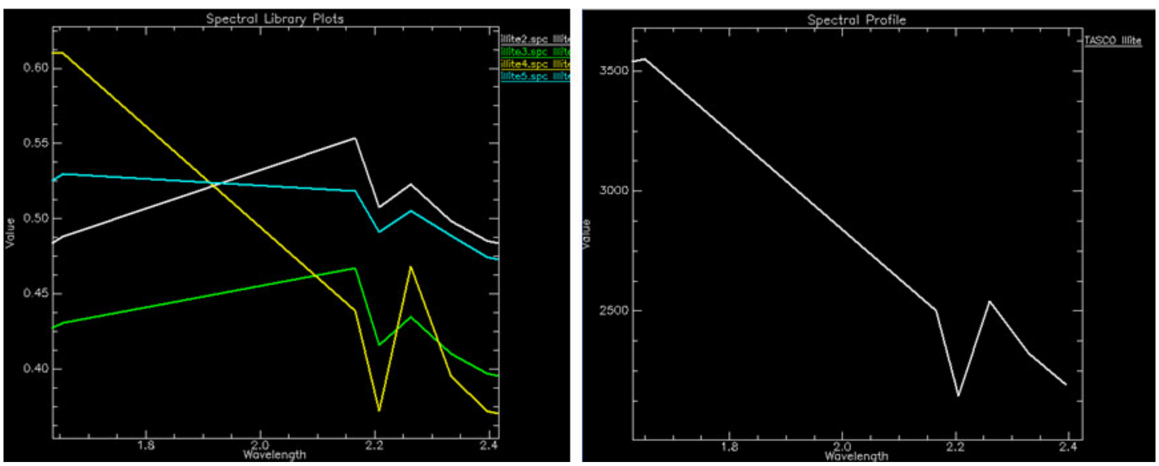


Figure 12. Left image shows five Illite spectra from the USGS Spectral Library and the right image shows the test spectrum collected from the ASTER image. Note the strong absorption feature at 2.2 (band 6).

Illite and muscovite have similar ASTER spectra and without reference to a field sample it would be very difficult to distinguish the difference. But it is likely not significant to the interpretation of this feature. At about 300°C muscovite is produced and below 300°C to about 200° illite is produced. It is likely that the minerals along this linear structure are illite or muscovite or some combination of the two. Illite has been noted in the peripheral upper parts of some intrusive-related systems and is often localized along existing structures. This interpretation would fit for this linear feature which is about 11 km by .5 km.

### *2.3.4 KAOLINITE Crosta Evaluation*

The Crosta method was used to test for kaolinite in the ASTER image area. Figure 13 displays the kaolinite spectra from the USGS Spectral Library and the 4 ASTER bands used in the analysis (bands 1, 4, 6 and 7). The analysis highlighted the area around the Copper Zone MINFILE occurrence within the TASCO claims, the major linear structure and the Limonite MINFILE occurrence (Figure 14). Closer examination of these results shows that this analysis does not discriminate well between kaolinite and illite. Figure 15a shows the ASTER spectra for kaolinite from the Spectral Library. Two spectra obtained from the ASTER image are shown in figures 15b and 15c. These spectra appear to represent kaolinite (15b) and illite (15b). Figure 15a & 15b show the image location of the illite spectrum, in the linear structure, and figures 15c & 15d show the location of the kaolinite spectrum, from the Copper Zone alteration zone.

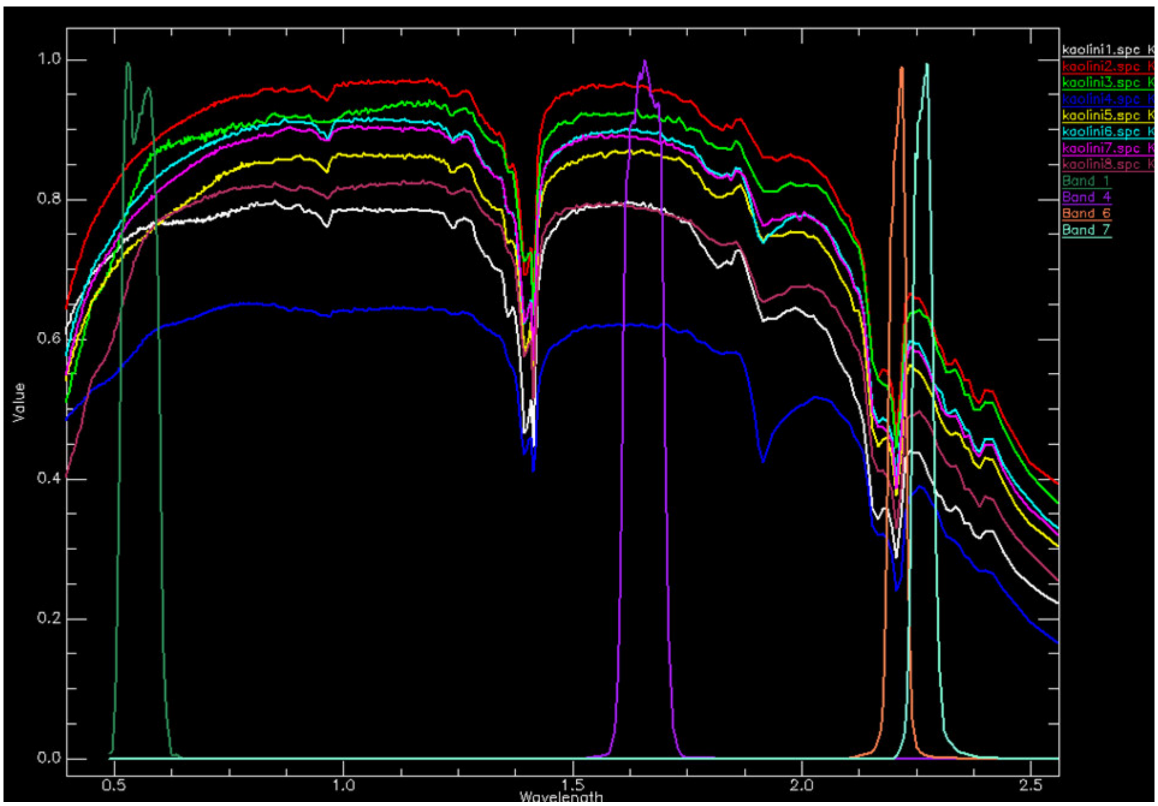


Figure 13. Plot of the kaolinite spectra from the USGS Spectral Library and the four ASTER bands used in the analysis.

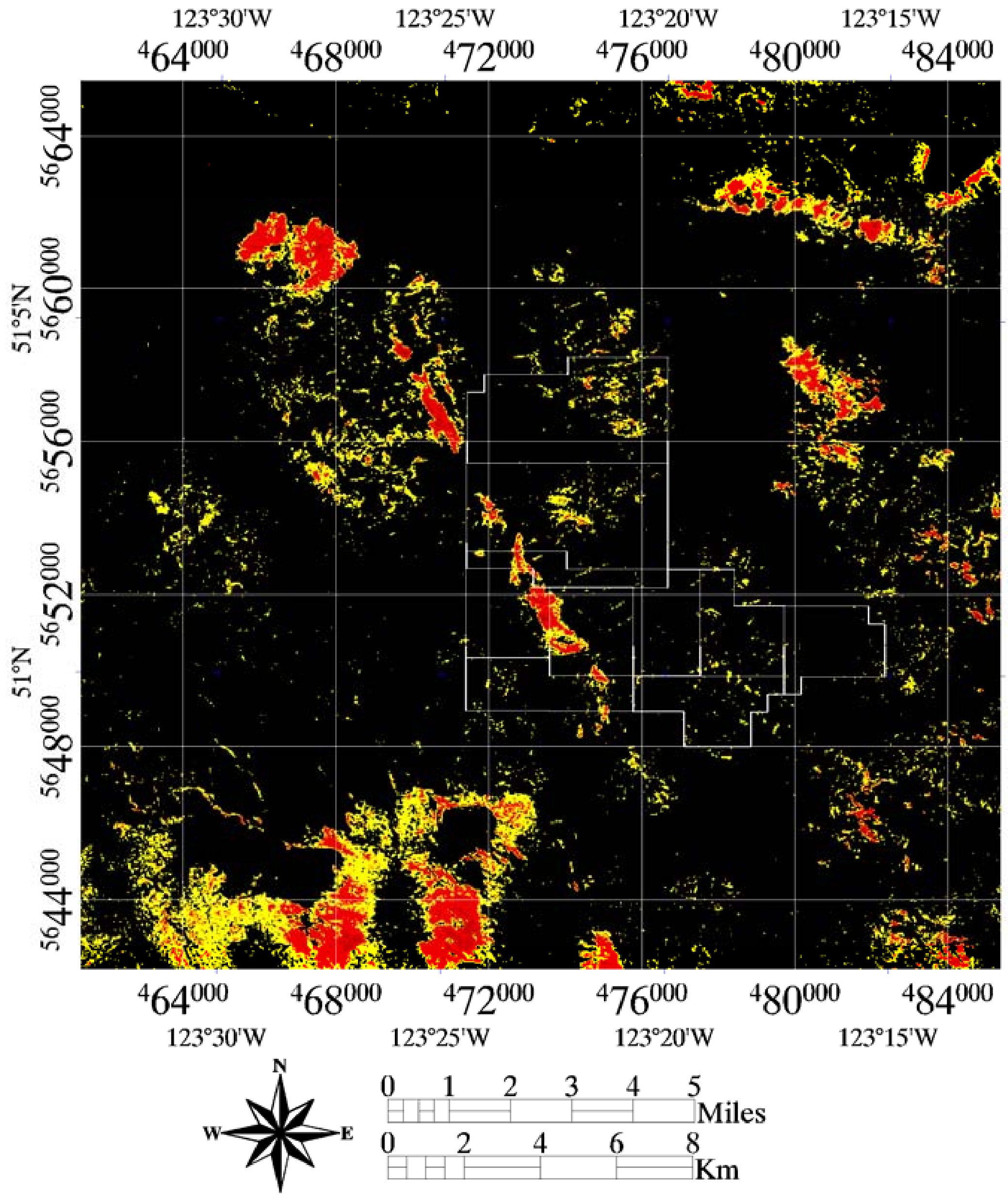


Figure 14. Map view of the results of the Kaolinite Crosta analysis. This analysis appears to highlight both kaolinite and illite.

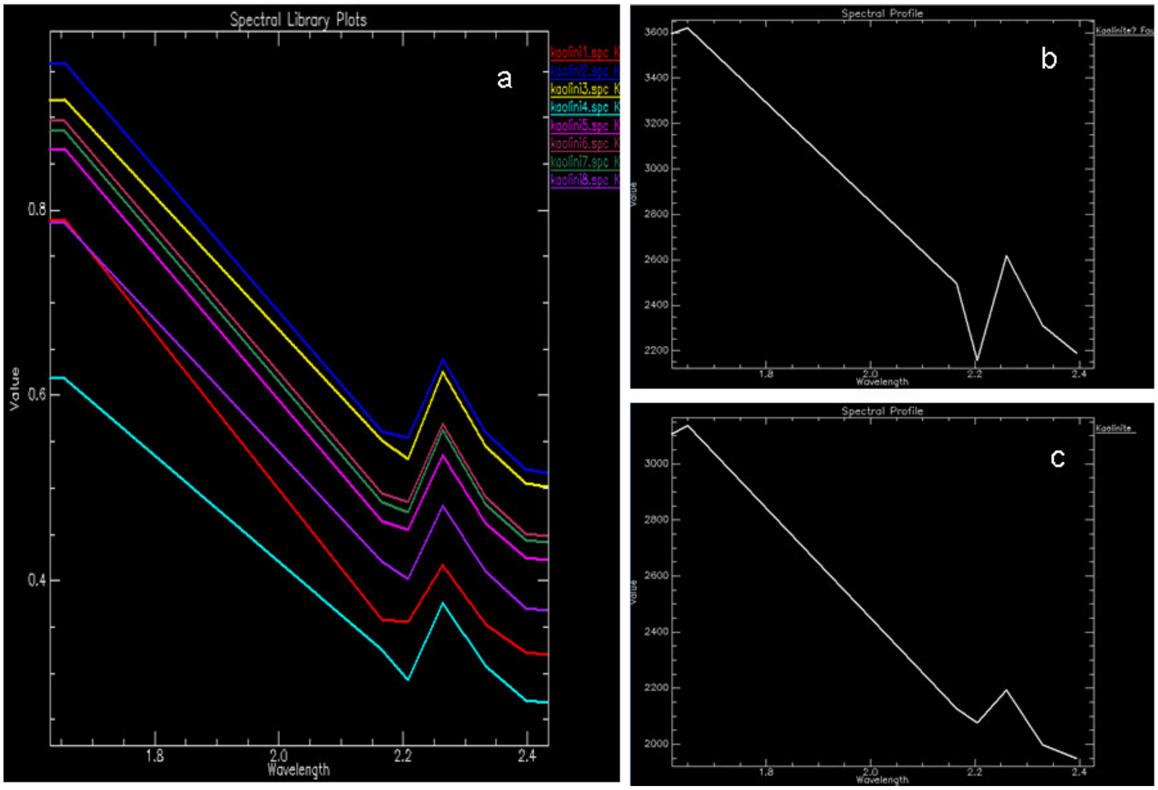


Figure 15. a) Kaolinite spectra from the USGS Spectral Library and b) illite spectrum from the ASTER image and c) kaolinite spectrum from the ASTER image.

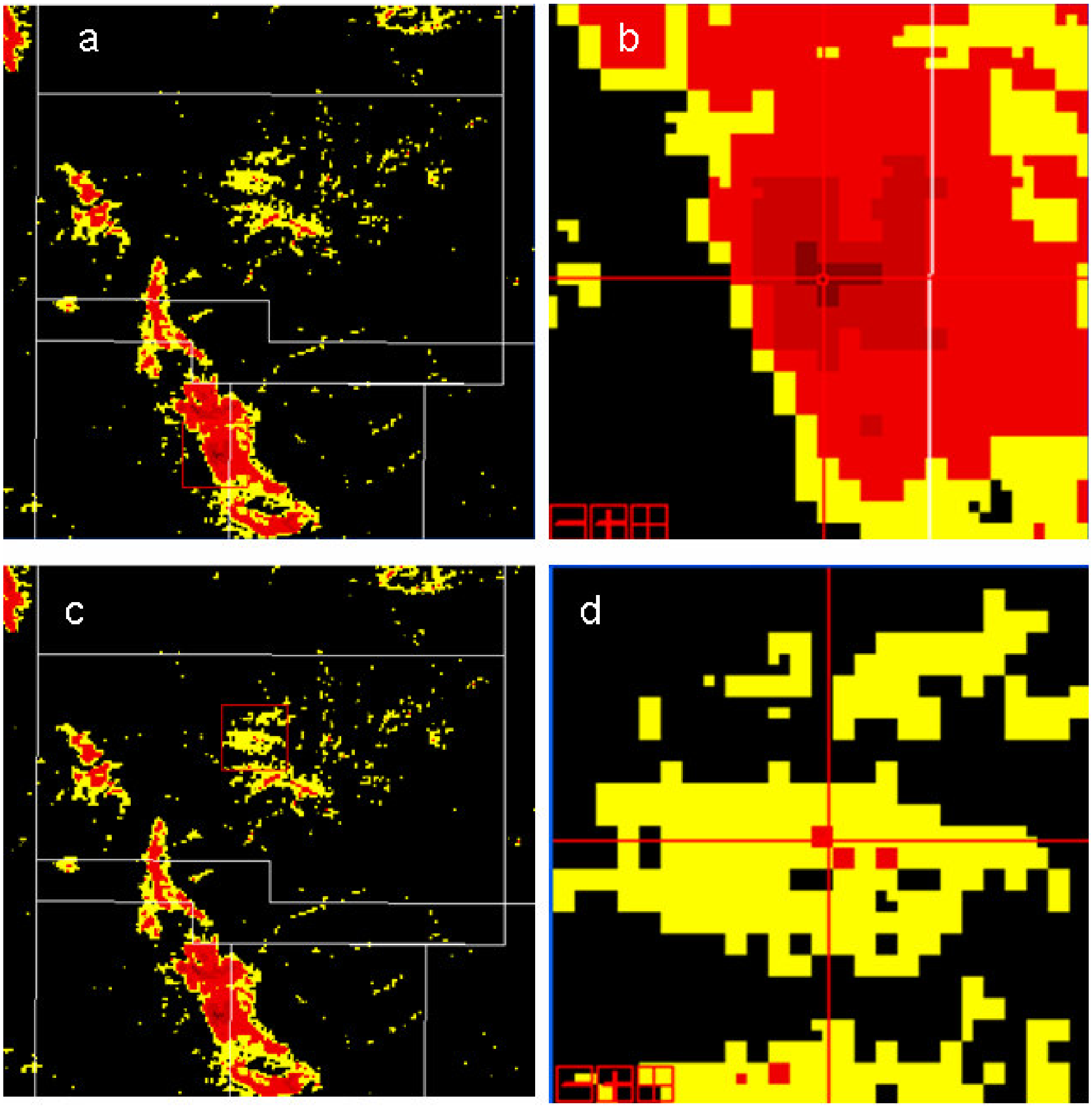


Figure 16. a & b) Location of the illite spectrum displayed in 15b from the linear structure. c & d) Location of the kaolinite spectrum displayed in 15c from the alteration zone at the copper showing.

### *2.3.5 KAOLINITE – SMECTITE Crosta Evaluation*

The Crosta method was also used to examine the distribution of a common mineral combination, kaolinite-smectite. Smectite and illite can often be intermixed so it is no surprise that this analysis shows much the same distribution as the illite and kaolinite image maps (Figure 17).

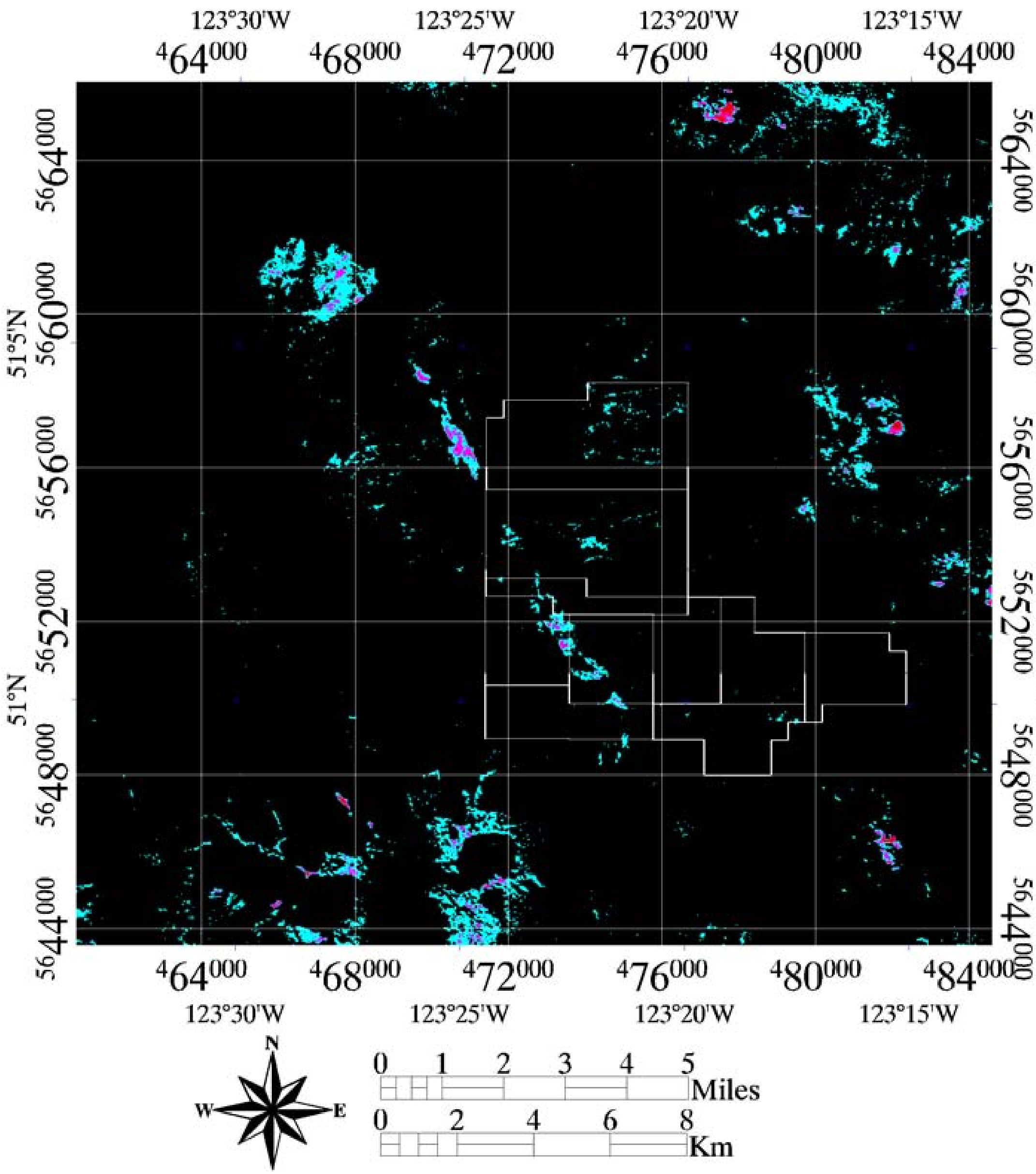


Figure 17. Image map of the kaolinite-smectite distribution resulting from a Crosta analysis.

### *2.3.6 Spectral Angle Mapper Analysis*

Spectral angle mapping is an analysis technique commonly used with hyperspectral data and to a lesser extent with multispectral data such as ASTER. This technique calculates the spectral angle between a known spectrum and the spectrum at each image pixel. This analysis was run on the major minerals identified during the Crosta analysis. Spectra for each mineral analyzed were obtained from the USGS Spectral Library and resampled to represent the spectra that would be recorded by the ASTER instruments. A spectral angle of 0.0° would mean that the image spectrum was a perfect match to the library spectra. As the angle increases the two spectra become more dissimilar. The spectral angle values provide a useful measure of similarity to the target mineral that is very reproducible and based solely on the information from each pixel so there is no external influence on the calculation from elsewhere in the image as is the case with analyses such as the Crosta technique.

The SAM analysis was performed on selected mineral samples from the USGS Spectral Library for limonite, alunite, kaolinite and illite. The results are displayed in the following image maps (Figures 18 to 21).

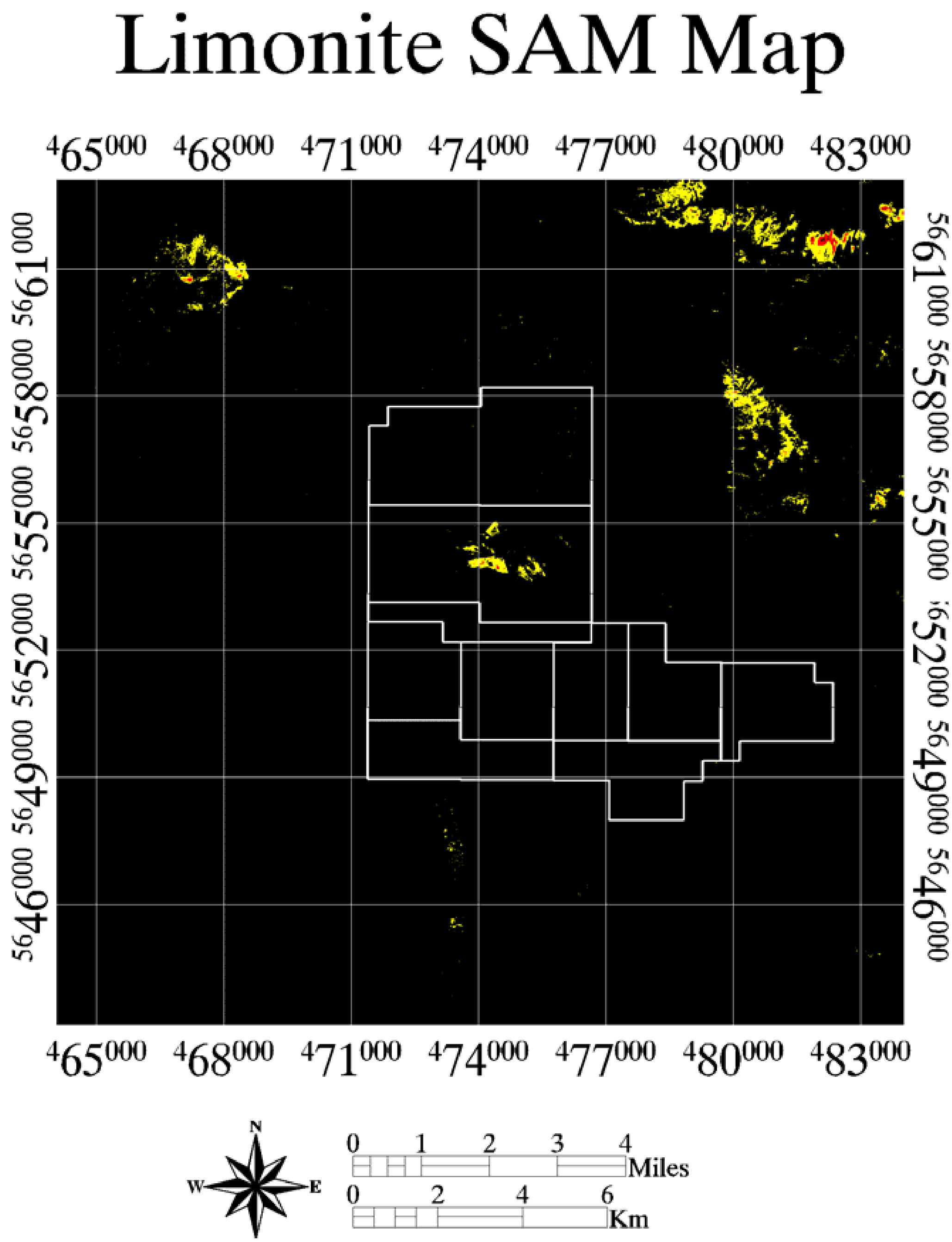


Figure 18. Map view of the limonite distribution as defined by low spectral angles relative to the limonite spectrum contained in the USGS Spectral Library. Red represents spectral angles from 0 to .05° and yellow represents spectral angles from .05 to .1°.

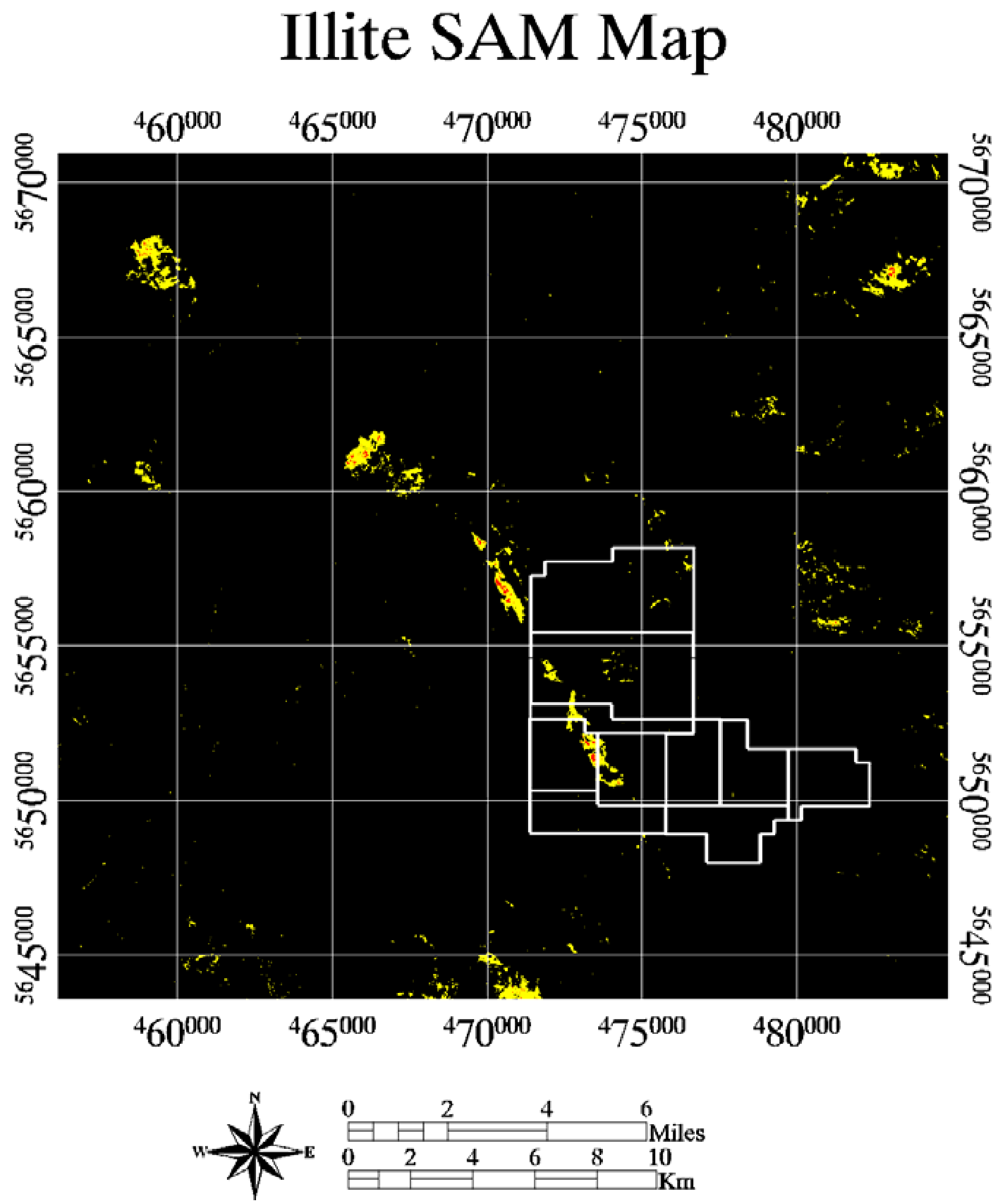


Figure 19. Map view of the illite distribution as defined by low spectral angles relative to the illite sample# 4 spectrum contained in the USGS Spectral Library. Red represents spectral angles from 0 to .025° and yellow represents spectral angles from .025 to .05°.

# Alunite SAM Map

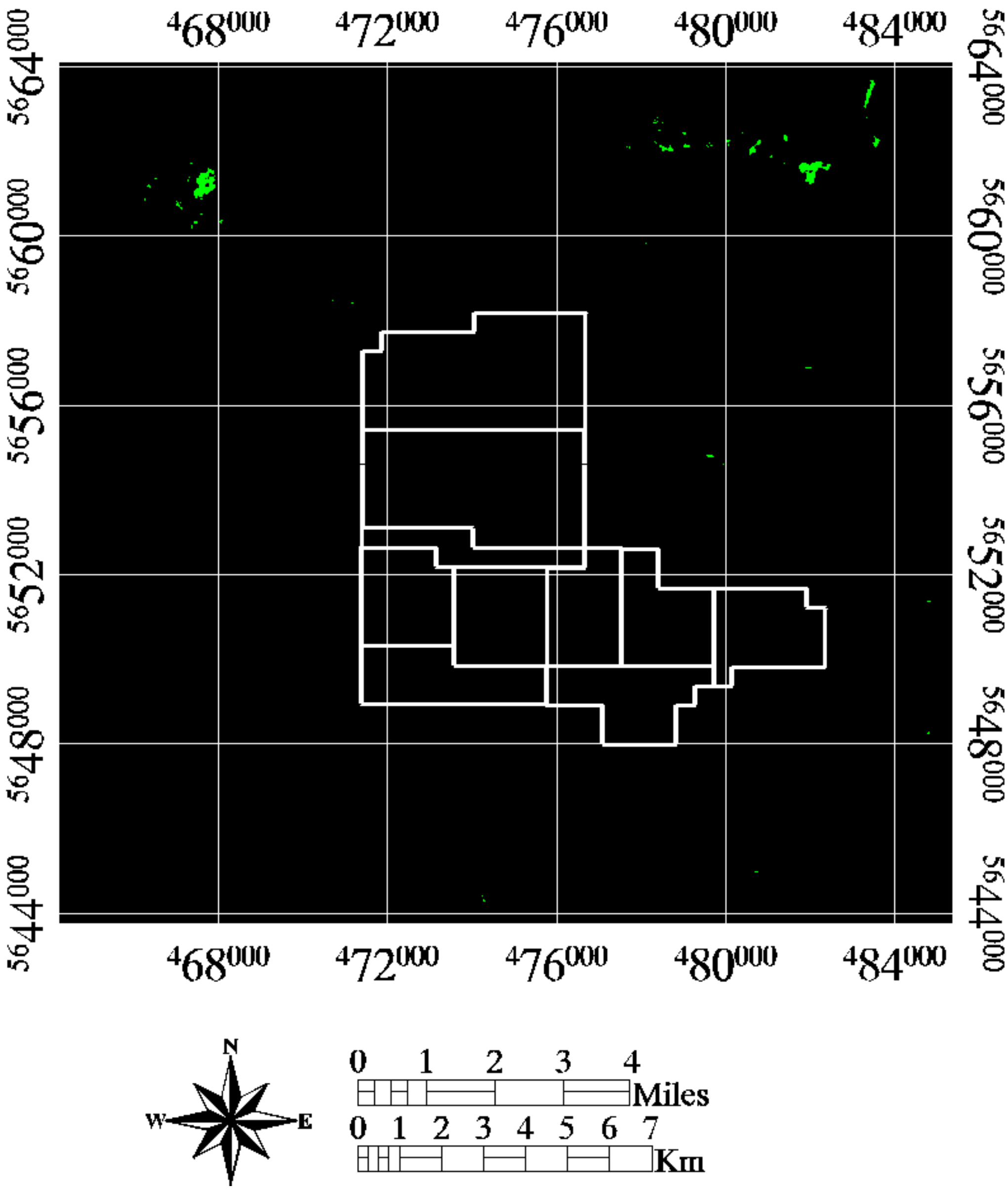


Figure 20. Map view of the alunite distribution as defined by low spectral angles relative to the alunite sample# 2 spectrum in the USGS Spectral Library. Green represents spectral angles less than .1°.

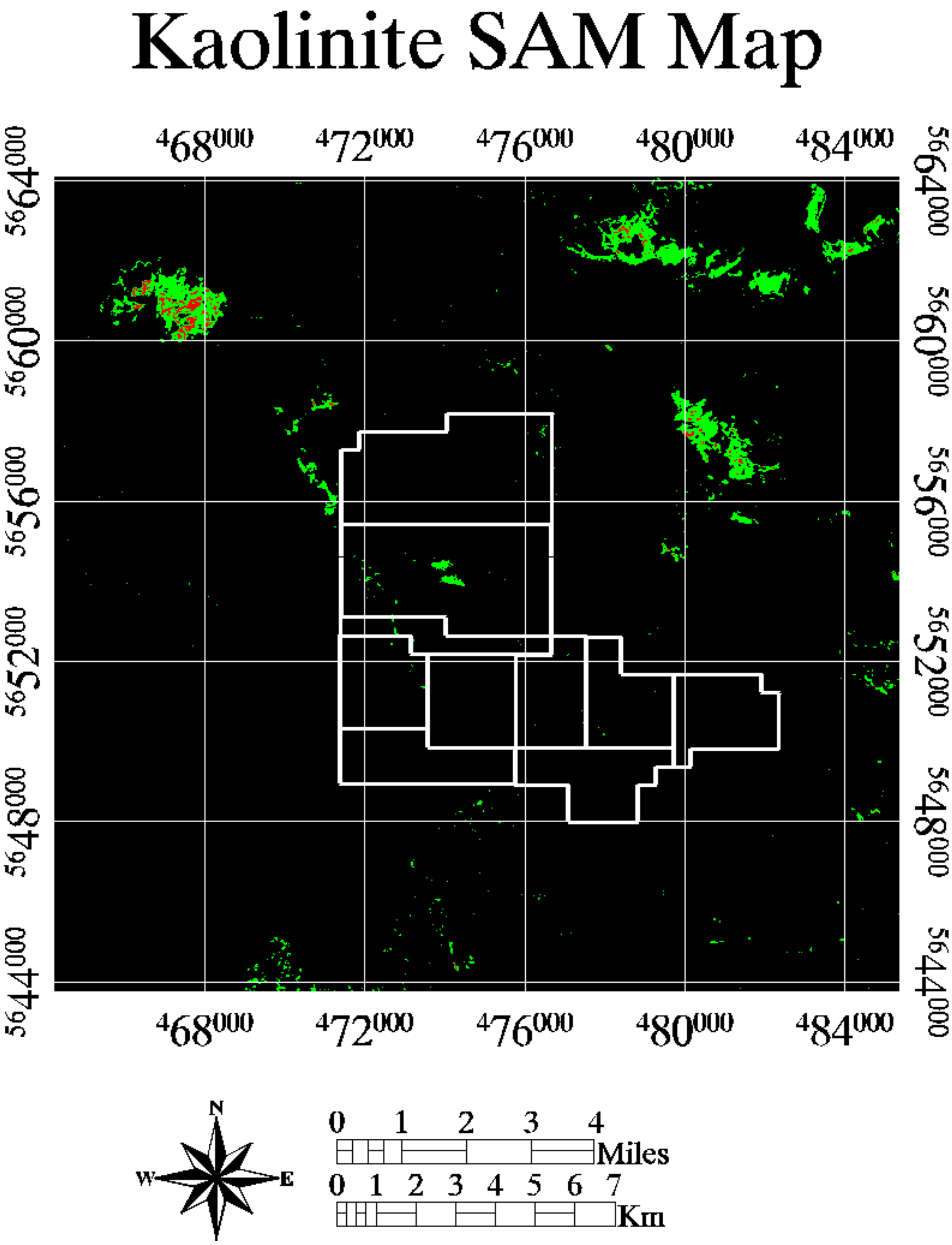


Figure 21. Map view of the kaolinite distribution as defined by low spectral angles relative to the kaolinite spectra contained in the USGS Spectral Library. Red represents spectral angles from 0 to .025° and yellow represents spectral angles from .025 to .05°.

To examine the spatial relationships between these alteration minerals the two combinations of three SAM analysis were generate. The colours red, green and blue have been used to represent the three mineral distributions in each case. Intermediate colours represent pixels where more than one of the minerals is present.

It must be remembered that in some cases an individual mineral map may in fact include other minerals so caution must be exercised when viewing the maps. However these displays are a good way to show the location and spatial relationships between the distribution patterns.

All the images generated in the SAM analyses and the two combination images are included as individual georeferenced image files in the appendix and are included in the KML file for the project.

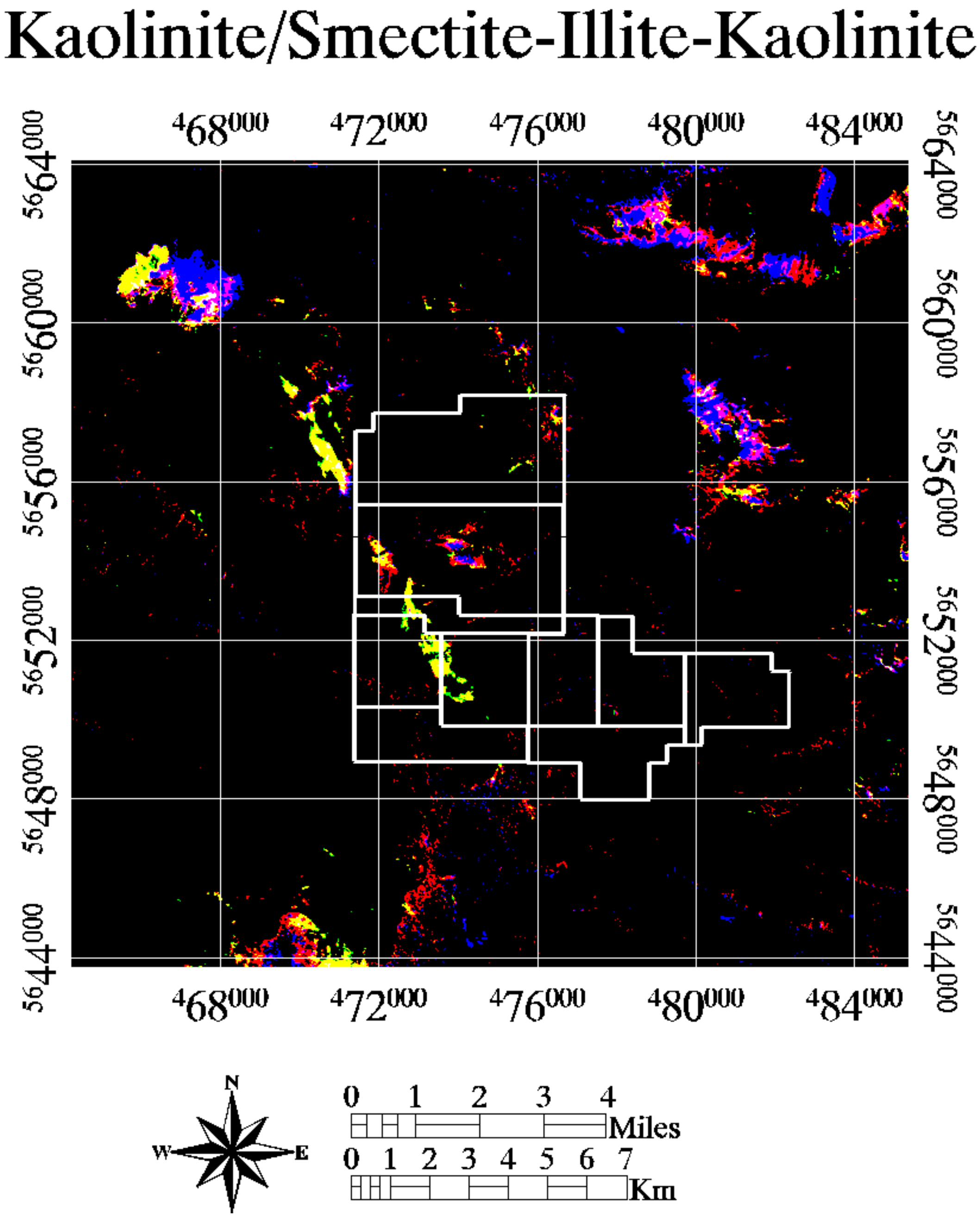


Figure 22. Distribution of SAM determined distributions of kaolinite/smectite, Illite and Kaolinite as red, green and blue, respectively.

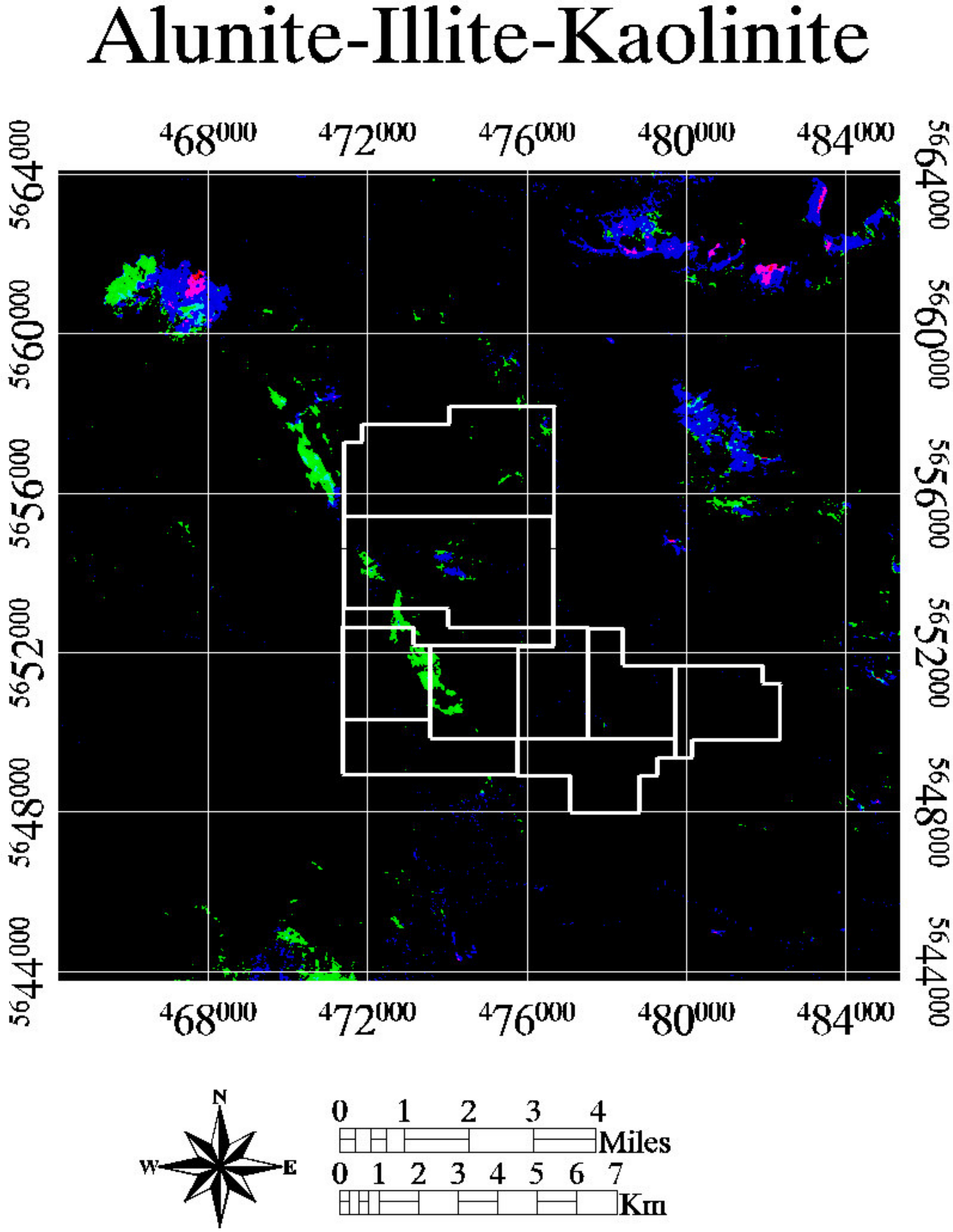


Figure 23 Distribution of SAM determined distributions of Alunite, Illite and Kaolinite as red, green and blue, respectively.

### *2.3.7 Digital Elevation Model Analysis*

In addition to spectral analysis a preliminary analysis of the digital elevation model (DEM) for the area was undertaken. As part of the ASTER orthorectification process a detailed DEM is generated from the stereo view contained within the data. In addition, the Shuttle Radar Topographic Mission (SRTM) DEM for the area was downloaded and examined. Hillshaded images of both datasets were constructed with 4 different sun angles to accentuate the surface features. The sun angles for this analysis were 90°, 135°, 180° and 125° azimuth with a 35° sun angle above the horizon. These images have been included with the spectral analysis image in the appendix as individual georeferenced files and are available in the KML viewing product as well.

A small linear topographic feature was interpreted to be a small fault striking approximately east-west just to the west of the MTO Tenure # 507507 (Figure 24). The feature can also be seen easily in an oblique Google Earth view (Figure 25). This structure is nearly perpendicular to the major linear spectral feature identified above.

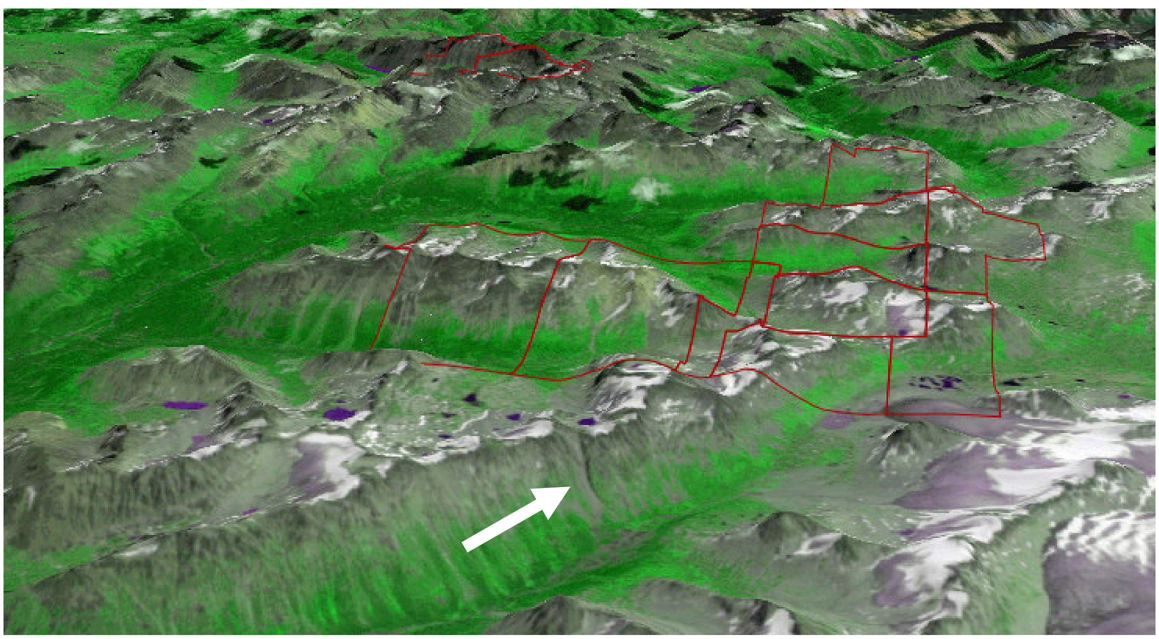

Figure 24. Easterly view over the TASCO claim group. The suspected easterly trending fault structure forms a small gully in the valley wall in the lower centre of the image. The white arrow points to the feature.

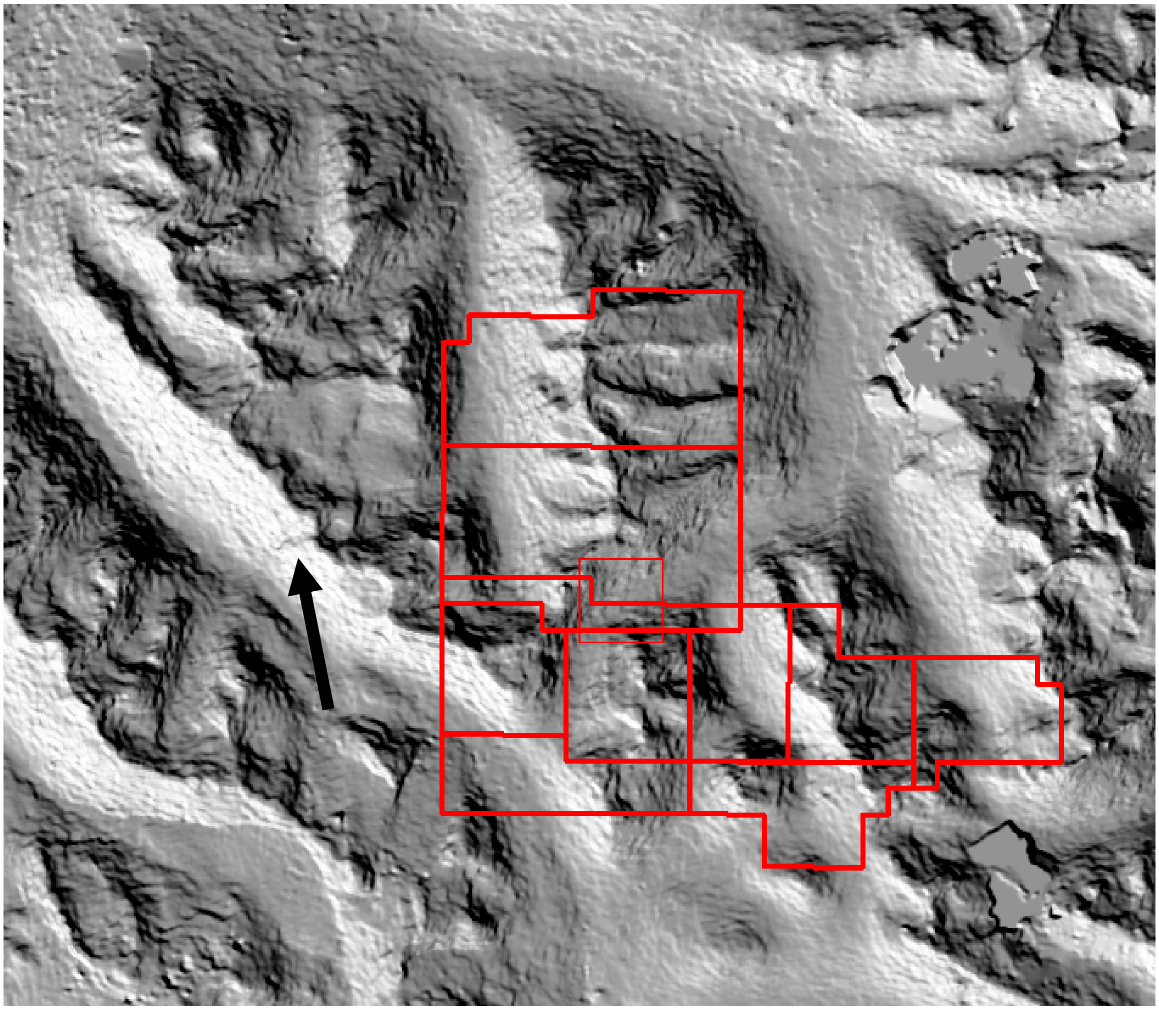

Figure 25. Hillshaded view of an ASTER DEM with the TASCO claim group. The sun lighting direction is from the southwest (225°) at a 35° angle above the horizon. The suspected fault is above the black arrow.

# 3.0 Discussion

The TASCO claim group contains two major spectral features that may be related to mineralization. The Copper Zone porphyry target located in the center of tenure # 507507 is well defined by the distribution of iron oxide mineralization, most likely limonite. In addition, kaolinite is closely associated with this feature. This feature will most likely appear as a classic gossan feature in outcrop.

The second major feature is a northwest trending linear alteration feature. The feature is about half a kilometre wide and at least 7 kilometres long. The most likely mineral associated with this feature is illite or possibly muscovite (sericite). No iron oxide minerals were detected in this feature and it likely appears as bleached zones in outcrop. This feature is likely an altered fracture system. This is likely an expression of the Tchaikazan Fault or a splay of this fault within the Coast Range Plutonic Complex. Examination of the Regional Aeromagnetic image on the MapPlace shows the position of this fault in the valley to the northwest and it can easily be traced directly into this feature. There is even an apparent offset in a magnetic high between the Rowbottom and Spokane occurrences that coincides well with the alteration zone. It may represent the mid-level portion of an epithermal vein system. The presence of illite and sericite (tentative identification) would suggest temperatures in the 200°C range for this mineral assemblage. The presence of anomalous gold geochemistry in the regional silt sediment geochemistry below this feature fits with this model. The presence of gold in several porphyry deposits in the area could also explain these silt geochemical values.

The spectacular alteration feature to the northwest of the TASCO claims at the Limonite MINFILE occurrence has been partially described as a Bog Iron deposit. It also contains a porphyritic intrusion as mapped by Glover et al. 1986.and also partially shown on the MapPlace geology layer. The clay mineral assemblage and distribution pattern are very interesting and suggestive of a circular alteration zone. But it is also possible that this pattern is the result of the topography interacting with the layered limonite deposit described in MINFILE. If this property were to come open it would be worth investigating.

# 4.0 References

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## 5.0 Appendices (DVD in pocket)

5.1 Appendix 1 – (Raw ASTER Data) This appendix contains the raw ASTER image data in HDF format as it was downloaded from the ASTER data center.

5.2 Appendix 2 – (Corrected ASTER Data) This appendix contains the corrected ASTER image data in ENVI's BIL format. The data has been orthorectified, atmospherically corrected and corrected for the cross-talk problem.

5.3 Appendix 3 – (Results Image Files) This appendix contains georeferenced images of all the major analysis results in GeoTiff format. Also included are the associated ESRI World (*.TFW) files.

5.4 Appendix 4 – (KML File and screen shots) This appendix contains the KMZ file integrating all the significant image analysis results, tenure outlines, roads, MINFILE, RGS, and geology information. It can be viewed with any software that can read KMZ or KML format such as Google Earth.