AER/AGS Special Report 114

# Interpretation of Geophysical Data, West-Central and Southern Alberta, to Support Investigations of He and Li Resource Potential

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# Interpretation of Geophysical Data, West-Central and Southern Alberta, to Support Investigations of He and Li Resource Potential

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Ronacher McKenzie Geoscience

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# Foreword

The Western Canadian Sedimentary Basin (WCSB) has a long history of oil and gas development, but a global shift towards more sustainable energy solutions has created a renewed interest in the WCSB for the exploration and development of critical minerals. Two of the minerals garnering interest are lithium, driven by an increasing demand for use in modern technologies such as rechargeable batteries; and helium, driven by an increasing demand for use in medical and technology industries as well as a depletion of the United States helium reserves in storage.

In 2020, the Alberta Geological Survey (AGS) began a project to investigate Alberta's prospectivity for lithium and helium resources. Structural features in the Alberta basin may allow fluid to migrate upwards from the Precambrian basement, and this fluid could be related to lithium-enriched brines and/or helium-rich gas reservoirs. As a part of the lithium and helium project the AGS decided to investigate this possibility.

In November 2020, Ronacher McKenzie Geoscience was contracted to use publicly available geophysical data to provide a structural interpretation and highlight features of interest in two specified areas: 1) near the Peace River Arch in west-central and northwestern Alberta (NTS map sheets 83F, K, M, and N; 84C and D); and in southern Alberta, south of Lethbridge (NTS map sheets 72E and 82H). The associated GIS data files are available in AER/AGS Digital Data 2021-0020.

This report provides the results of the geophysical interpretation. This interpretation does not include any relationships to lithium, helium, or fluid flow regimes, but rather is a look at features found in the geophysical data. Aside from the cover, copyright information, and this page, the report is published as-received from the vendor. The publication should not be taken as a promotion or endorsement of the vendor.

REPORT

INTERPRETATION OF GEOPHYSICAL DATA

# Alberta Geological Survey: He and Li project

Prepared for:

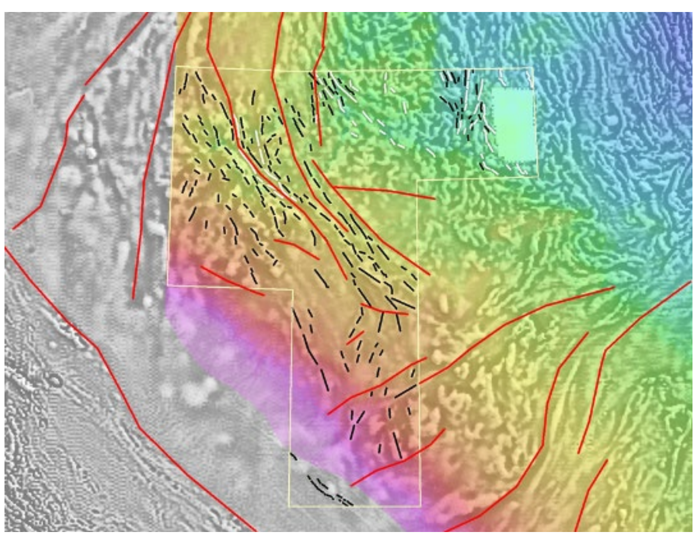
Alberta Geological Survey

Prepared by:

Ronacher McKenzie Geoscience Inc.


Jenna McKenzie, P.Geo.
Elisabeth Ronacher, PhD, P.Geo.
Farzaneh Farahani, MSc, P.Geo.


2021-02-28



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# 1 INTRODUCTION

The Alberta Geological Survey ("AGS") commissioned Ronacher McKenzie Geoscience ("Ronacher McKenzie") to complete a structural interpretation of geophysical data in the areas of interest identified by the AGS as part of their helium and lithium prospectivity project.

Publicly available geophysical data was obtained and reviewed for this project. All coordinates are listed in NAD83, UTM zone 11 N (Peace River Arch area) and 12N (Southern Alberta area).

## 1.1 Ronacher McKenzie Geoscience Qualifications

Ronacher McKenzie Geoscience Inc. is an international consulting company with offices in Sudbury and Toronto, Ontario, Canada. Ronacher McKenzie's mission is to use intelligent geoscientific data integration to help mineral explorers focus on what matters to them. We help a growing number of clients understand the factors that control the location of mineral deposits.

With a variety of professional experience, our team's services include:

- Data Integration, Analysis and Interpretation
- Geophysical Services
- Project Generation and Property Assessment
- Exploration Project Management
- Resource Estimation and Independent Technical Reporting
- Project Promotion
- Lands Management

The primary Qualified Person and co-author of this Report is Ms. Jenna McKenzie, Hons. B.Sc., P.Geo. Ms. McKenzie is co-founder and Principal Geophysicist of Ronacher McKenzie Geoscience and a geoscientist in good standing with Professional Geoscientists Ontario (PGO#1653). Ms. McKenzie has worked as a geophysicist since 2001 in the exploration and mining industry on a variety of exploration properties such as porphyry-copper, gold, VMS, Ni-Cu-PGE, diamond-bearing-kimberlite and potash. Ms. McKenzie has worked on a variety of deposit types with specific focus on geophysics surveying and interpretation. Ms. McKenzie is responsible for this report and did not visit the Property.

The other co-author of this Report is Elisabeth Ronacher Ph.D., P.Geo. Dr. Ronacher is co-founder and Principal Geologist of Ronacher McKenzie Geoscience and a geoscientist in good standing with Professional Geoscientists Ontario (PGO #1476). Dr. Ronacher has worked as a geologist since 1997 with academia and industry on a variety of commodities such as Au, Cu, bas-metal, Cu-Ni-PGE and U. She has worked on a range of deposit types. Dr. Ronacher is responsible for Section 3 – Geological Setting of this report and did not visit the Property.

Additionally, Farzaneh Farahani, MSc, P.Geo, a geoscientist in good standing with Professional Geoscientists Ontario (PGO #3074) assisted with data processing and presentation. Ms. Farahani is a project geophysicist with Ronacher McKenzie.

Statements of Qualification are provided in Appendix 1.

## 2 Project Location

The project consists of two main areas. The first area, named Peach River Arch ("PRA") comprises of NTS map sheets 084D, 084C, 084B, 083M, 083N, 083K, 083F. The coordinates for PRA are listed in NAD83 UTM Zone 11N. The second area, named Southern Alberta ("SAB"), comprises of NTS map sheets 082H and 072E. The coordinates for SAB are listed in NAD83 UTM Zone 12N. An overview of both project areas can be found in Figure 2-1.

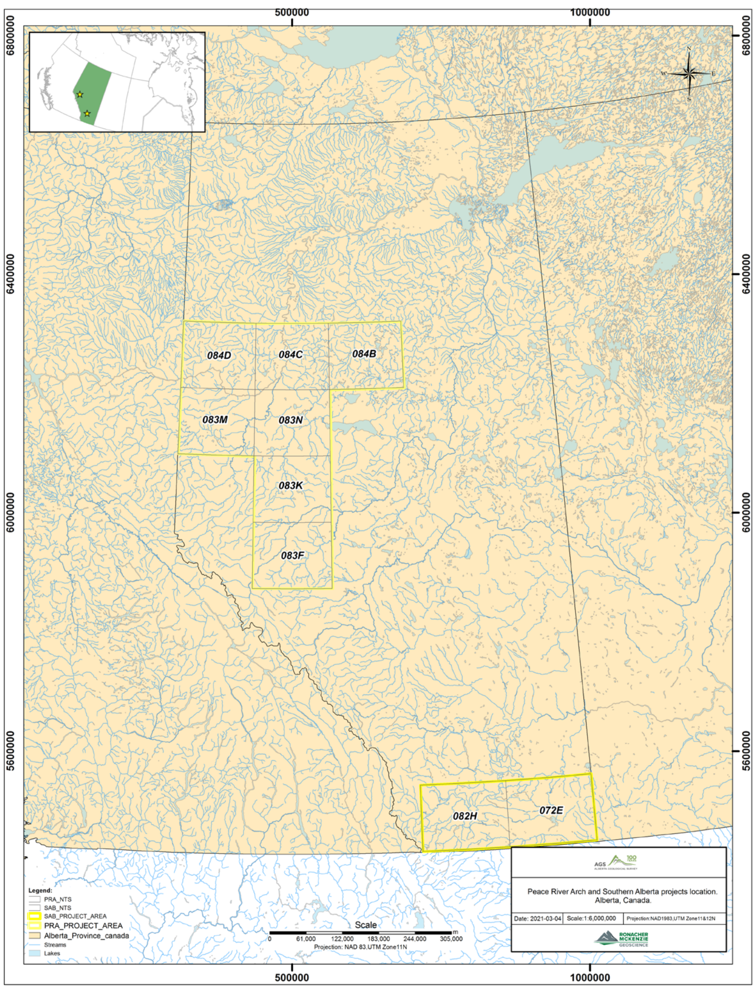


*Figure 2-1. Peace River Arch and Southern Alberta project locations*

# 3 GEOLOGICAL SETTING

## 3.1 Regional Basement Geology

In both study areas, sedimentary rocks of the Western Canada Sedimentary Basin cover the basement rocks of the Precambrian Shield thus limiting direct investigation of the rocks. Ross et al. (1994) used geophysical data to delineate structures and litholgic domains under the sedimentary basin. In addition, about 400 drill holes reached basement rocks. However, because of the uneven distribution of the drill holes, the basement is still not well understood in the study areas (Burwash et al., 1994).

Burwash et al. (1994) described signifant variations in basement elevation due to preferential erosion of less comptent rock units. Some regional faults were interpreted within the Precambrian basements, including the Hay River fault zone just northwest of the Peace River study area, and faults at the western edge of the Canadian Shield (Figure 3-1).

Those drill holes that extend to the basement provided insight into the basement lithology. Burwash et al. (1994) list the following rock types as being the most abudnant: quartzo-feldspathic gneiss, granitoids, granulites, metasedimentary rocks, mylonite and amphibilite.

### *3.1.1 Peace River Arch*

The basement in the Peace River Arch study area consists dominantly of metamorphic belts (Burwash et al, 1994). Hoffman (1989) interpreted geophysical data and delineated servaral different domains in the Peace River study area: (1) the Bullalo Head terrane, (2) the Chinchaga terrane, (3) the Ksituan Early Proterozoic (2.00-1.90 Ga) continental margin magmatic arc and (4) the Wabamun domain, a belt of mylonitic granulies that forms a part of the Snowbird orogen; its age is unknown (Figure 3-2).

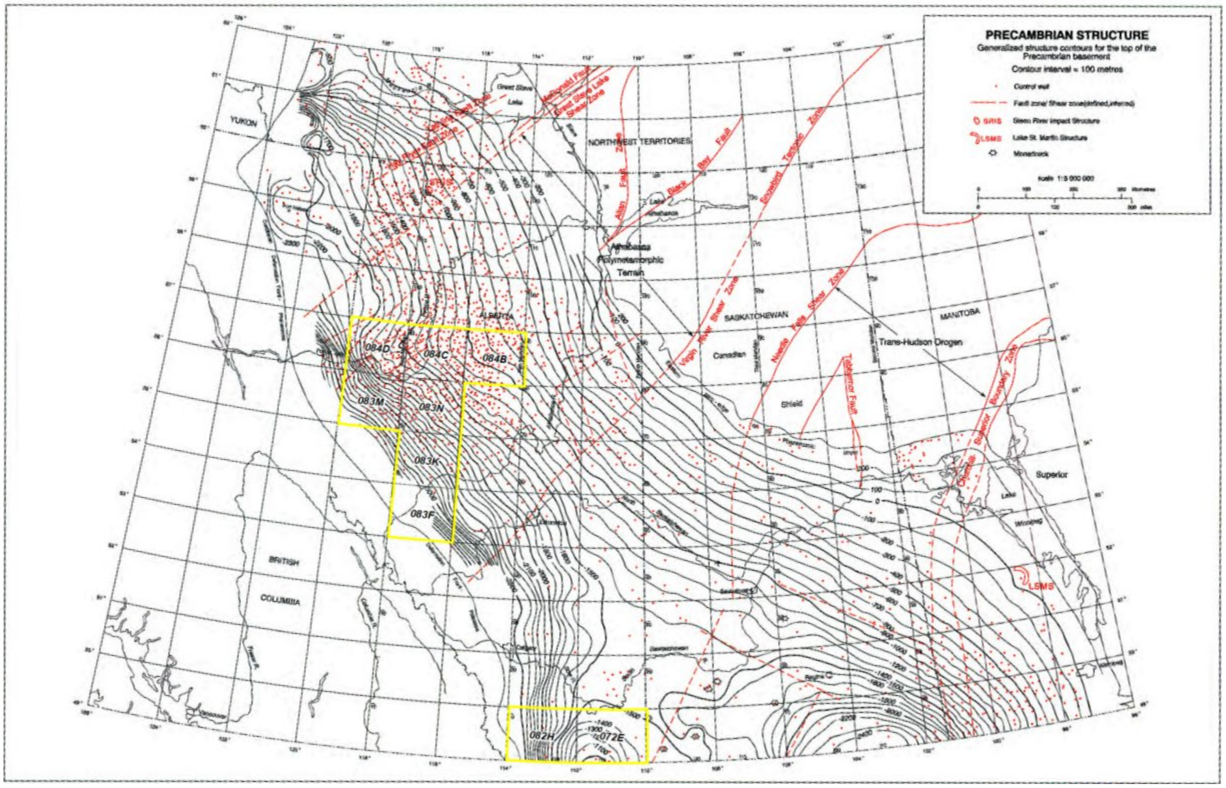


Figure 3-1. Precambrian Structure. From Burwash et al 1994

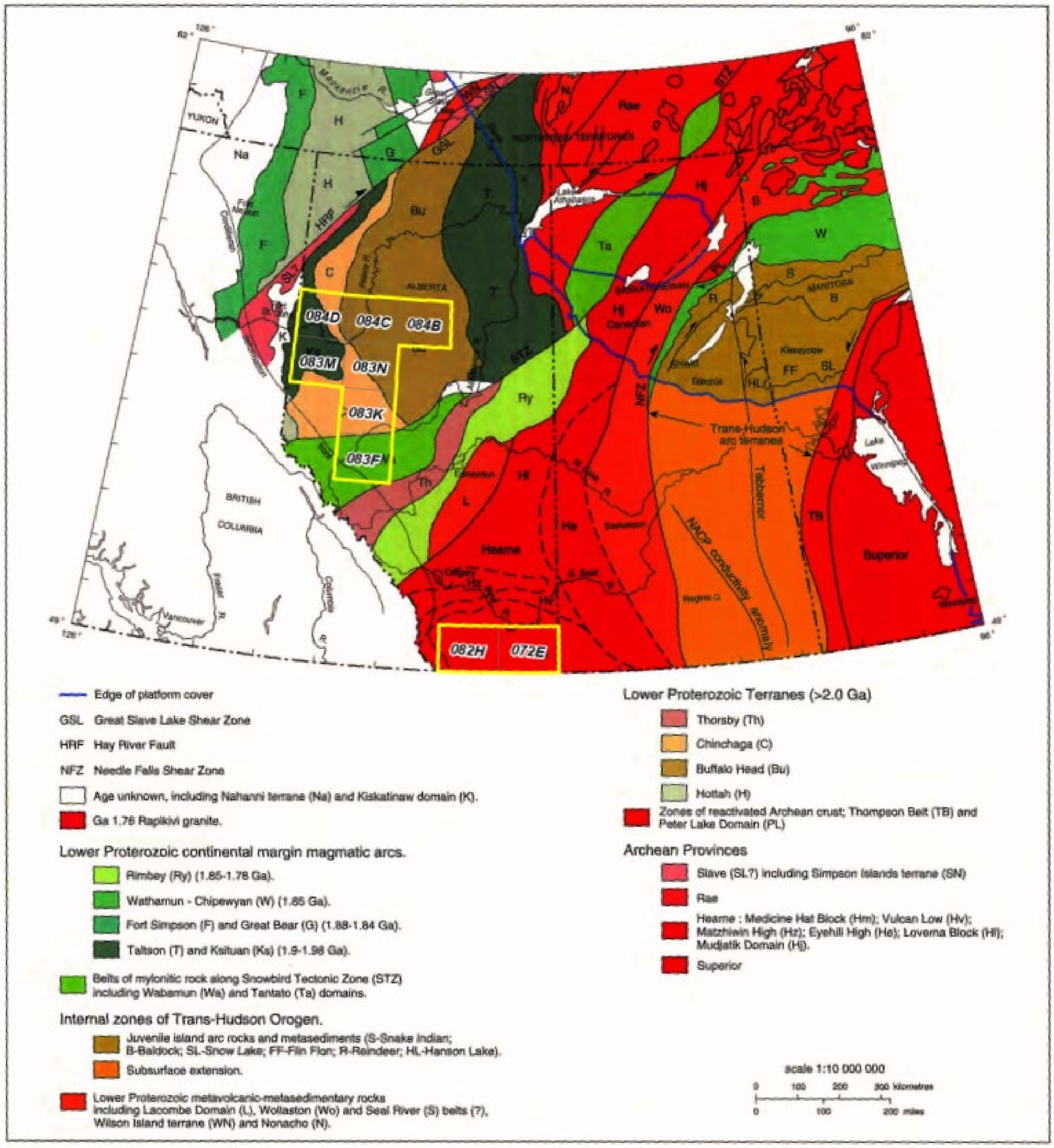


*Figure 3-2. Map showing interpreted basement geological units (from Ross et al., 1997).*

### *3.1.2 Southern Alberta south of Lethbridge*

The SAB area is located entirely in Hoffman's (1989) Medicine Hat Block of the Hearn Province. The southern boundary of the Medicine Hat Block is the Great Falls tectonic zone, which is located south of the Canada-USA border. The northern boundary of the block is the Vulcan low, which is interpreted to be a north-dipping suture within the Hearn Province (Hoffman, 1989)

# 4 STRUCTURAL OBSERVATIONS AND INTERPRETATION

## 4.1 Methodology

Structural observations were made from publicly available geophysical data including magnetic data, gravity and digital elevation. Geophysical data was sourced from Natural Resources Canada's Geoscience Data Repository for Geophysical Data (Government of Canada, 2016), the United States Geological Survey ("USGS") Magnetic Map of North America (United States Geological Survey, 2002) and digital elevation data was sourced from the Shuttle Radar Topography Mission ("SRTM") 1 Arc Second Global dataset (United States Geological Survey, 2021).

The magnetic data was clipped to the areas of interest and several filters were applied to highlight different aspects of the underlying geology. The filters applied are listed in Table 4-1. Filters were provided in standard RGB colour scale and in isoluminant format (Peter, 2015). All magnetic filter products can be found in Appendix 2 – Map Products.

*Table 4-1. Magnetic filters applied to the areas of interest.*

| Product | Description |
|---|---|
| TMI | Total magnetic intensity |
| VD1 | First vertical derivative |
| VD2 | Second vertical derivative |
| AS | Analytic signal |
| RTP | Reduction to pole ("RTP") |
| RTP_BW | Reduction to pole - black and white |
| RTP_VD1 | First vertical derivative of RTP |
| RTP_VD1_BW | First vertical derivative - black and white |
| RTP_VD2 | Second vertical derivative of RTP |
| RTP_THDR | Total horizontal derivative of RTP |
| RTP_THDR_VD1 | First vertical derivative of total horizontal derivative |
| RTP_TDR | Tilt filter of RTP |
| RTP_HD_TDR | Horizontal derivative of tilt filter |
| RTP_AREA | Filter highlighting consistent areas of RTP |
| RTP_EDGE | Filter highlighting edges of RTP |
| STRUCTURE | RGB Ternary product: R-VD1, G-dx, B-dy; Highlights structures |
| GEOLOGY | RGB Ternary product: R-TMI, G-VD1, B-VD2; Highlights geologic boundaries |

The structural analysis method employed in this report consists of three stages: Observation, Compilation and Interpretation. Airborne data was filtered to produce various products highlighting different structures; key observations were recorded and interpreted in a large-scale context. All postulated structures and domain settings were evaluated against previously interpreted structures compiled by the Alberta Geological Survey (Pana, Waters, & Grobe, 2001). It is noted that several of Pana et al.'s (2001) interpreted structures refer to the sedimentary cover as opposed to the basement.

## 4.2 Magnetics

The analysis of magnetic data follows the flowchart methodology developed by Siddorn (Siddorn, 2010). Raw observations were recorded from magnetic filter products within the area of interest. The magnetic data was then viewed extending beyond the borders of the project area to determine structures and other features that may be impacting the project area. The magnetic data predominantly reflect changes in basement geology rather than overlying sedimentary units.

### *4.2.1 Peace River Arch area*

The Peace River Arch ("PRA") area has a relatively thin sedimentary cover in the north east of the project area and substantially deepens towards the south west, with depth to basement estimated at up to 7,000 m. Observations from magnetic data are displayed in Figure 4-1. Once observations were complete, a separate layer of interpretation lines was created and is displayed in Figure 4-2.

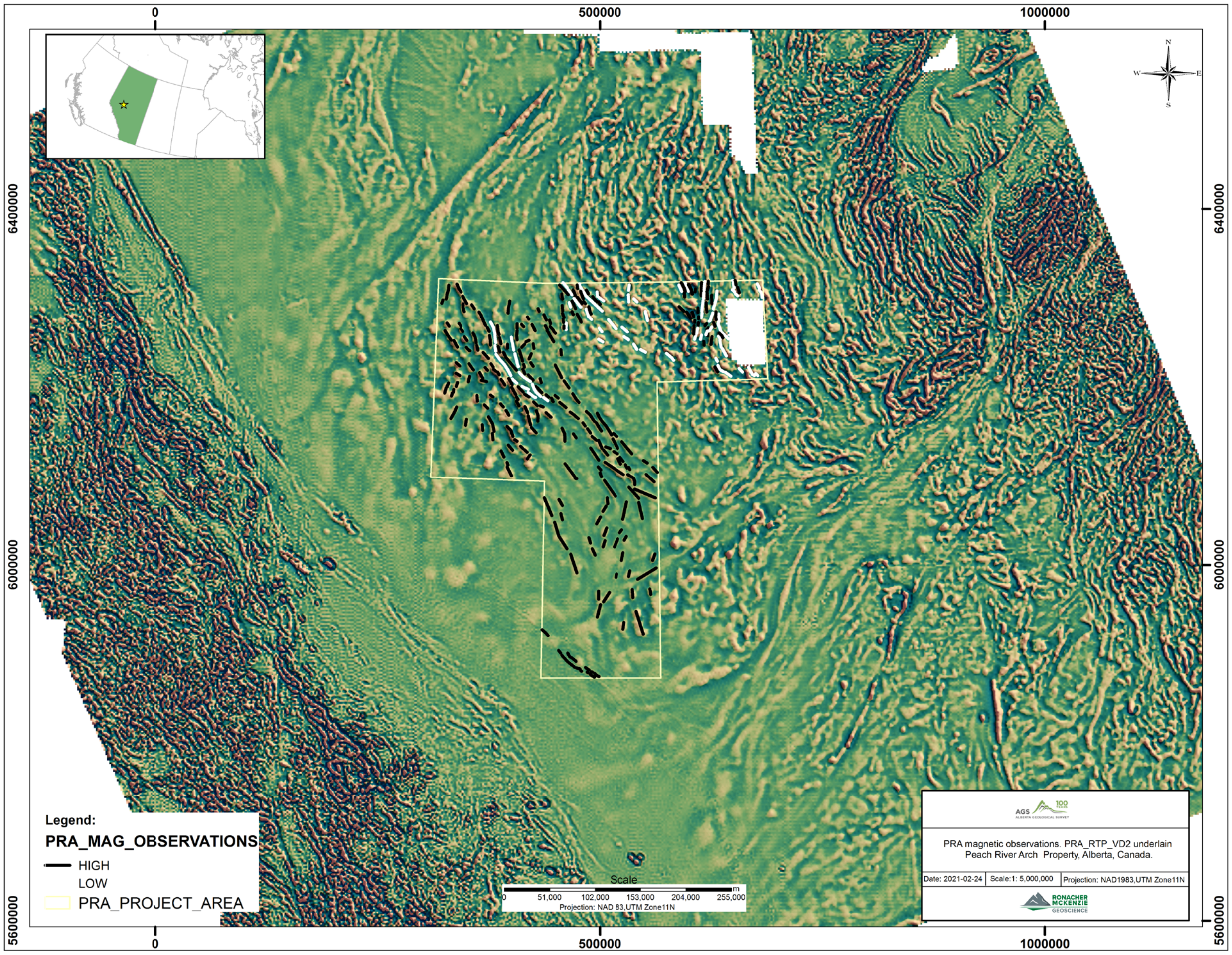


*Figure 4-1. PRA magnetic observations. PRA_RTP_VD2 underlain*

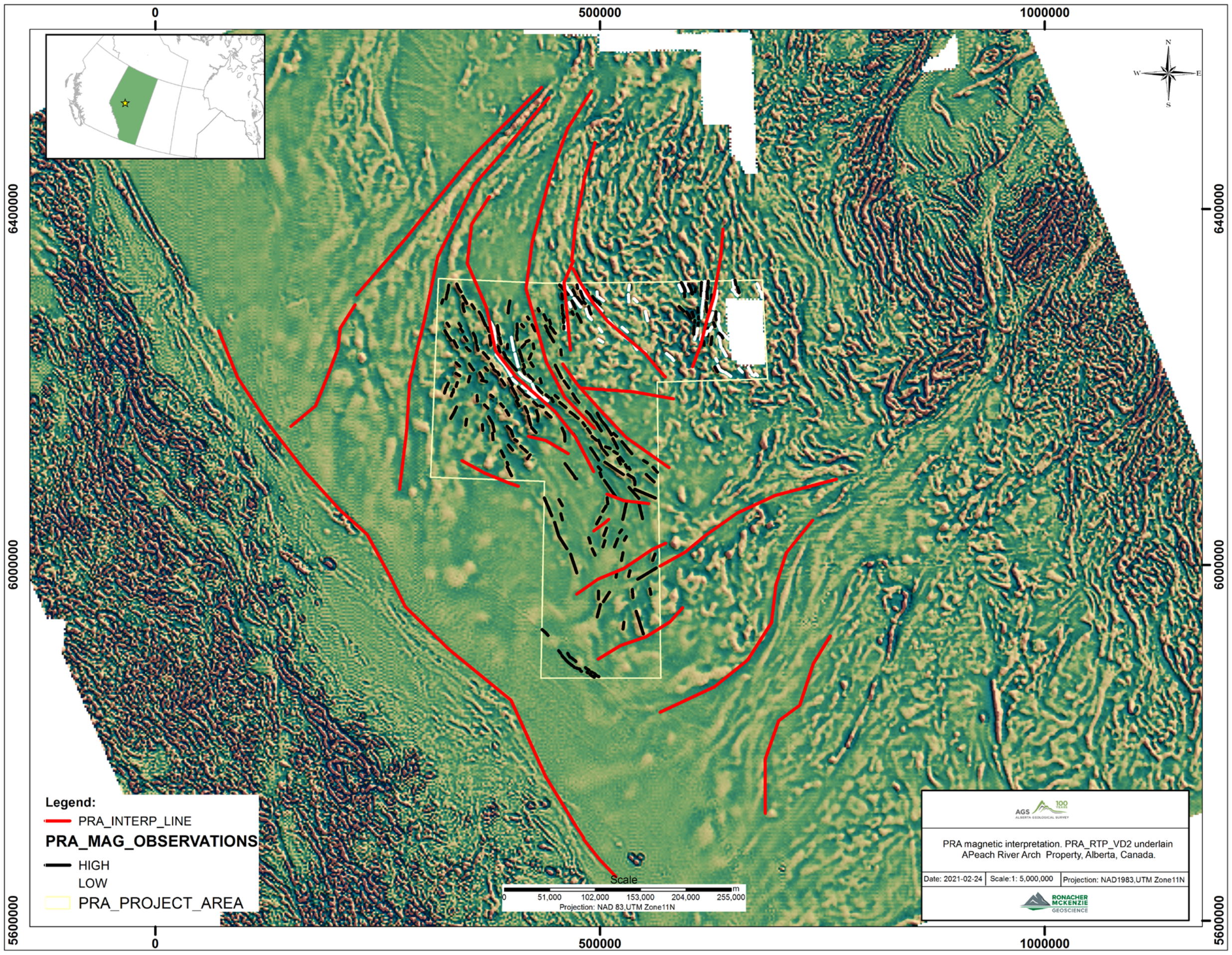


*Figure 4-2. PRA magnetic interpretation. PRA_RTP_VD2 underlain*

Comparing the interpretation to Figure 3-2, it appears that the features align with the tectonic domains and likely represent geological boundaries (Figure 4-3).

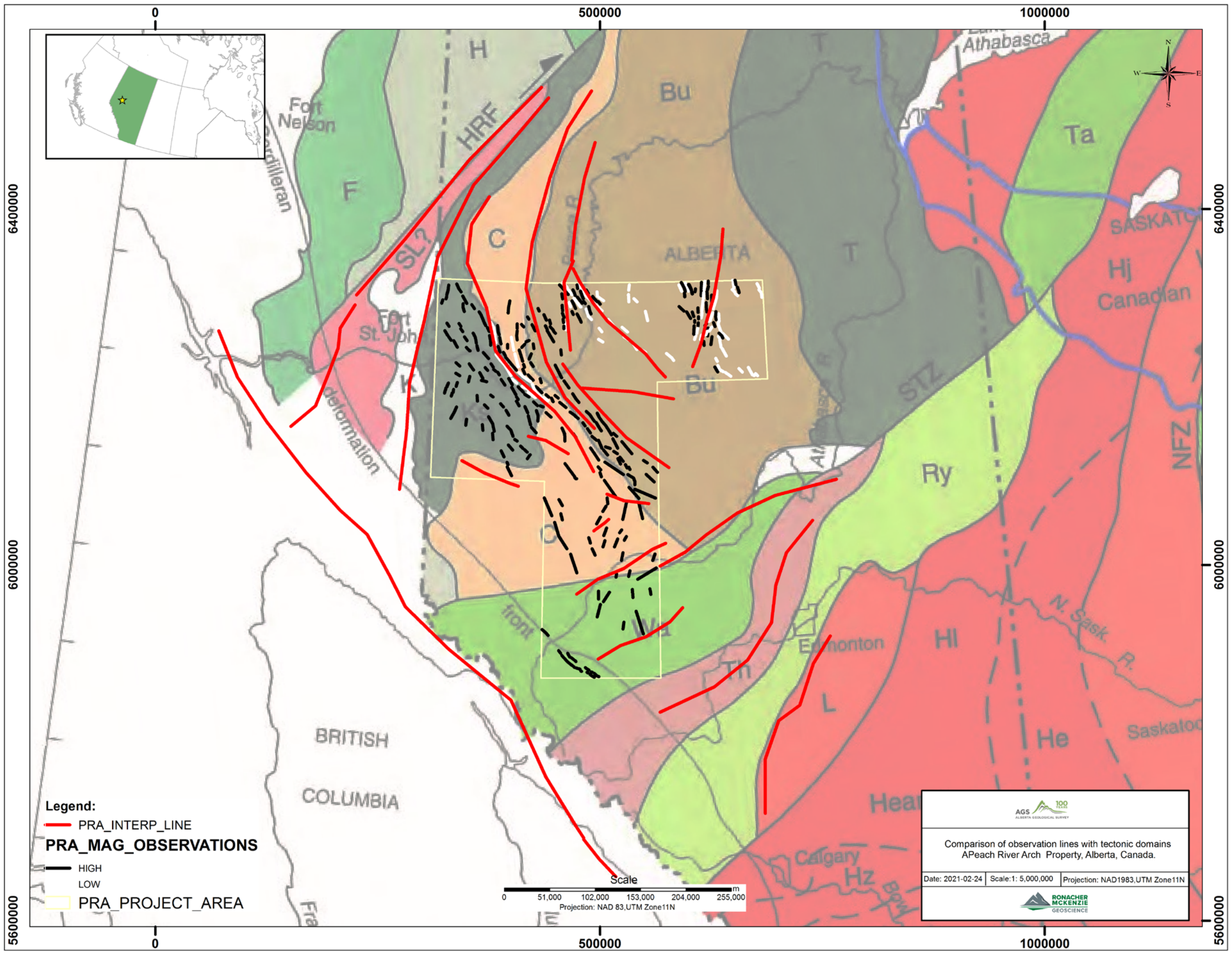


Figure 4-3. Comparison of observation lines with tectonic domains

Figure 4-4 shows higher frequency magnetic features in the north east of the project indicating a shallower depth to basement in this area. The magnetic features become increasingly blurry as the thickness of the sedimentary cover increases, making any interpretations more difficult.

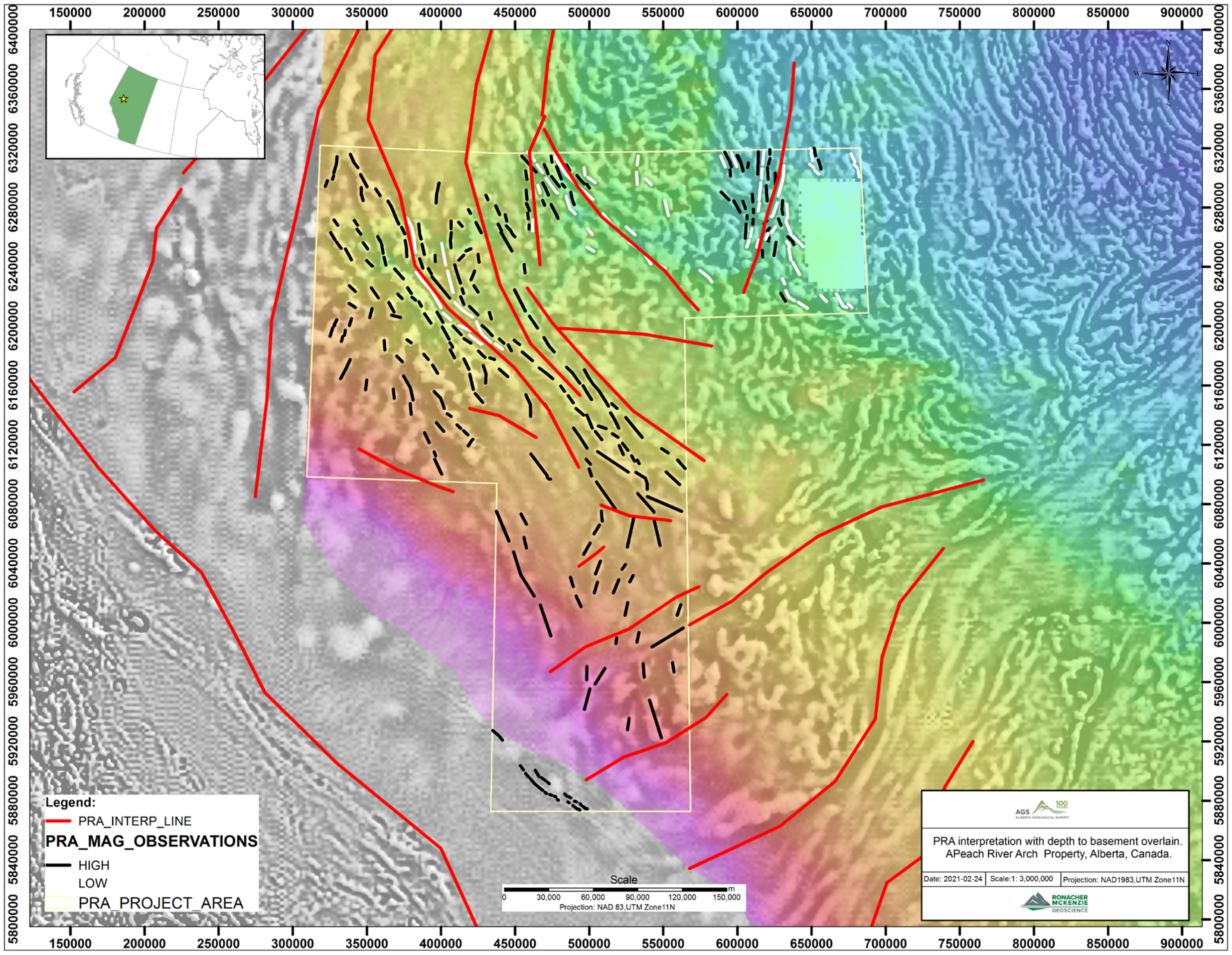


*Figure 4-4. PRA interpretation with depth to basement overlain.*

Figure 4-5 shows a prominent NW trending feature crosscutting the PRA project area. It represents a major discontinuity in the magnetic data and is interpreted to be a major domain boundary and possibly a shear zone.

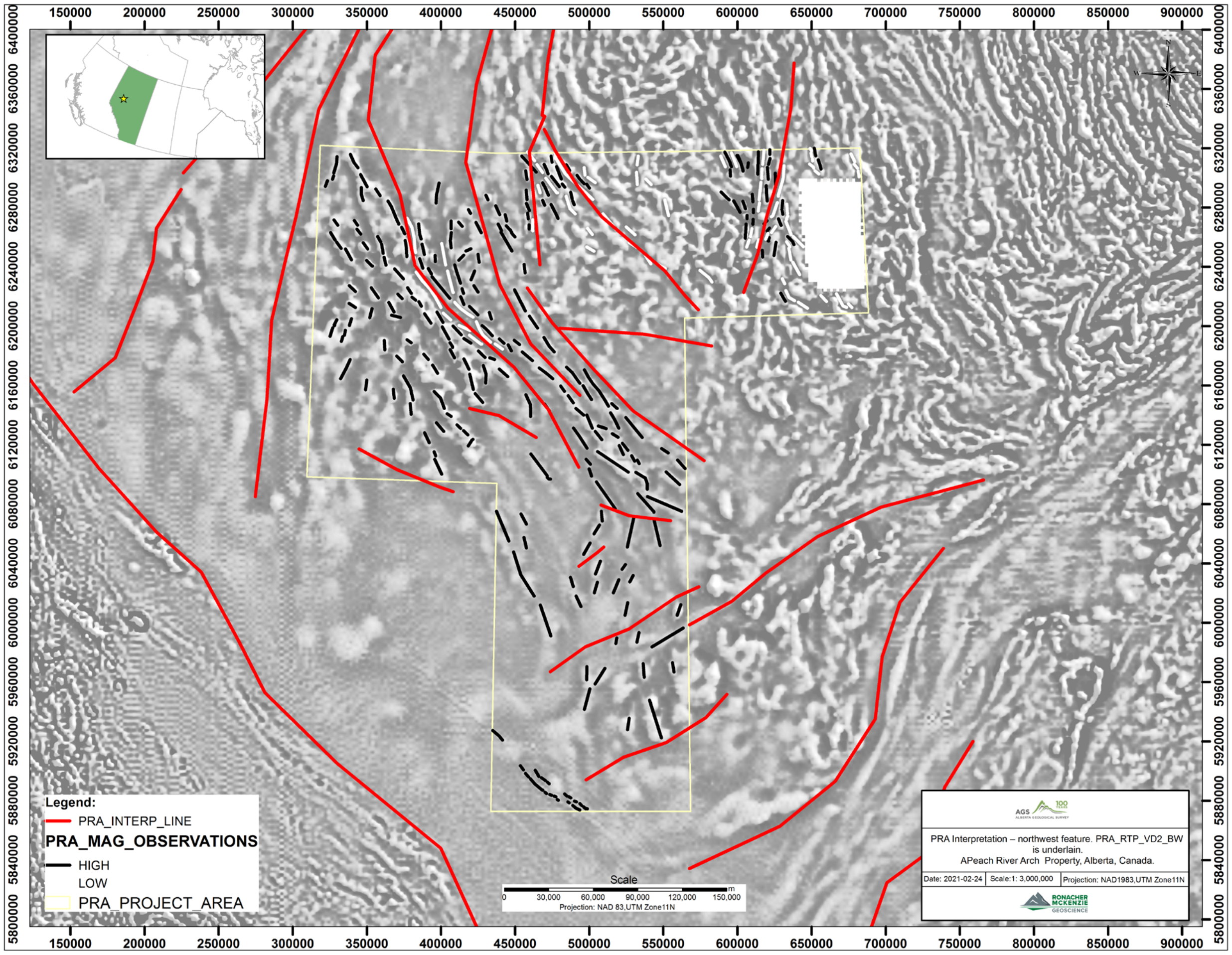


*Figure 4-5. PRA Interpretation – northwest feature. PRA_EXT_RTP_VD2_BW is underlain.*

Figure 4-6 shows two observations in the north east of the project area that are interpreted to be faults. A significant change can be noted in the magnetics in the NW trending feature which aligns with a shear zone delineated by Pana et al. (2001).

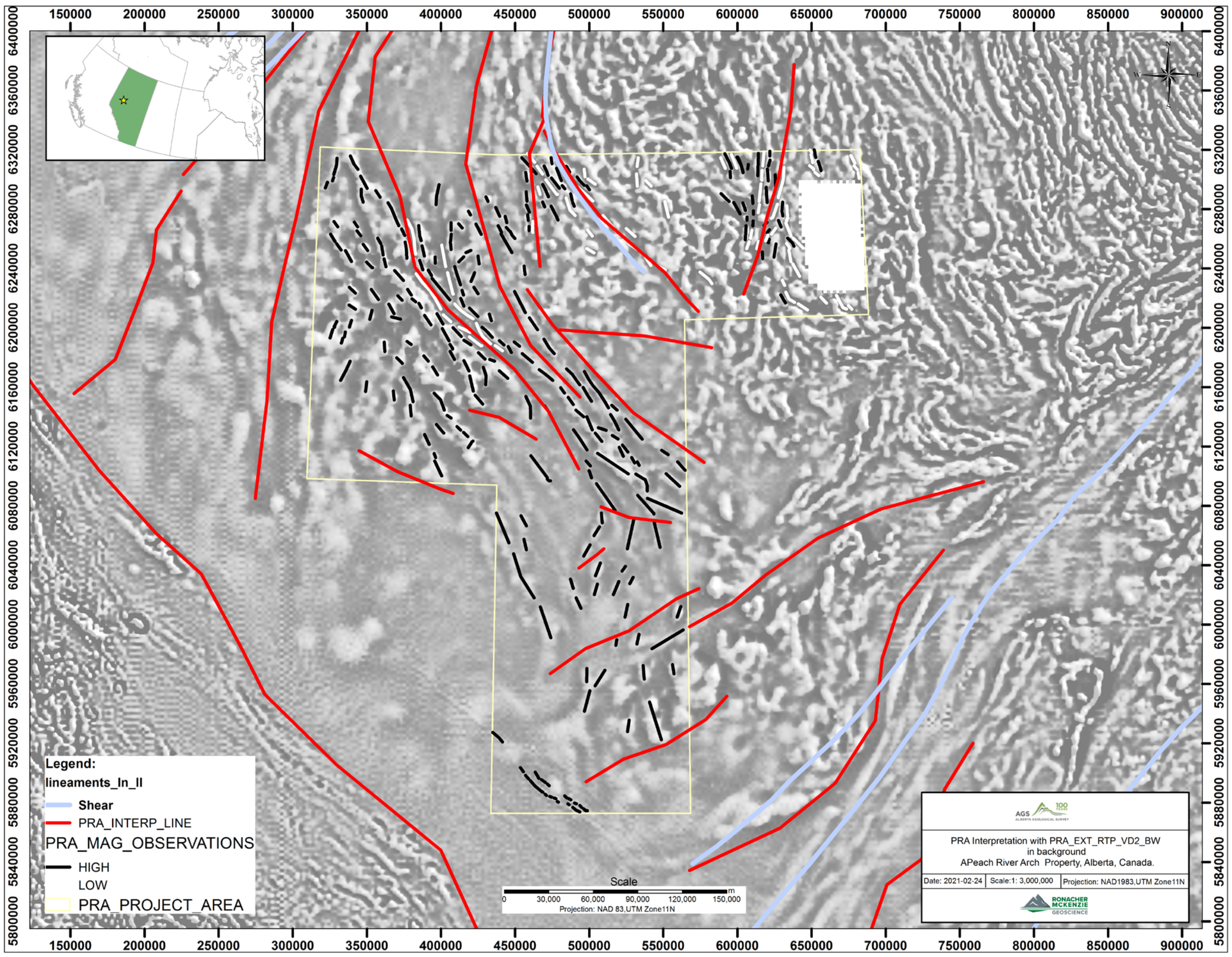


*Figure 4-6. PRA Interpretation with PRA_EXT_RTP_VD2_BW in background.*

Figure 4-7 denotes a N-NNE trending feature just west of the project boundary. The contrast is noted on the RTP and other filter products. This is a prominent feature and is interpreted as a contact between Hoffman's (1989) Ksituan magmatic arc and Ross et al.'s (1994) Kiskatinaw domain (Figure 4-3).

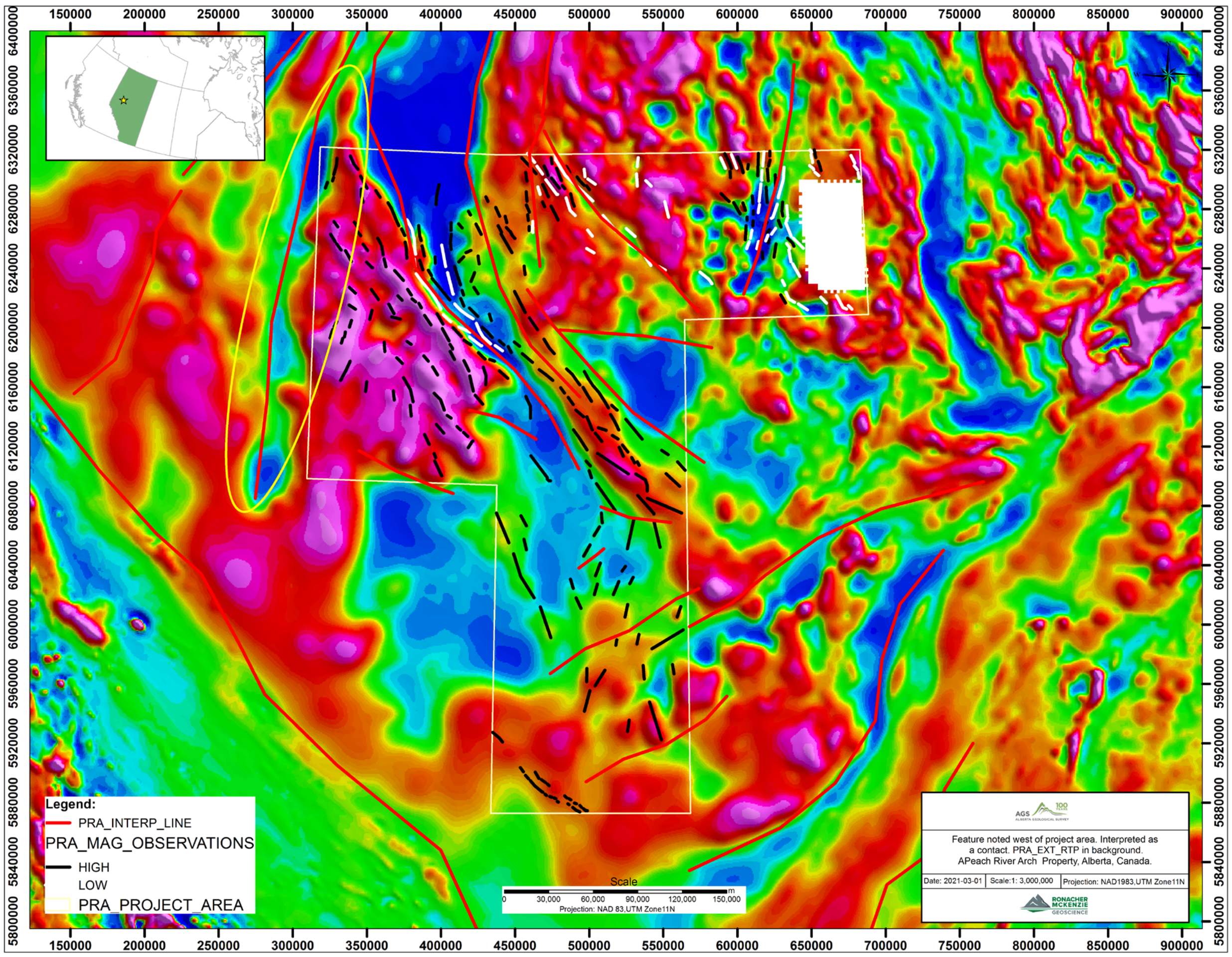


*Figure 4-7. Feature noted west of project area. Interpreted as a contact. PRA_EXT_RTP in background*

Finally, a NE trending feature is noted in the southern portion of the project area, highlighted in Figure 4-8. It interrupts other trends and is interpreted as a fault. The NE trending features just east of the area of interest is interpreted to be a contact between magnetically different units or domains.

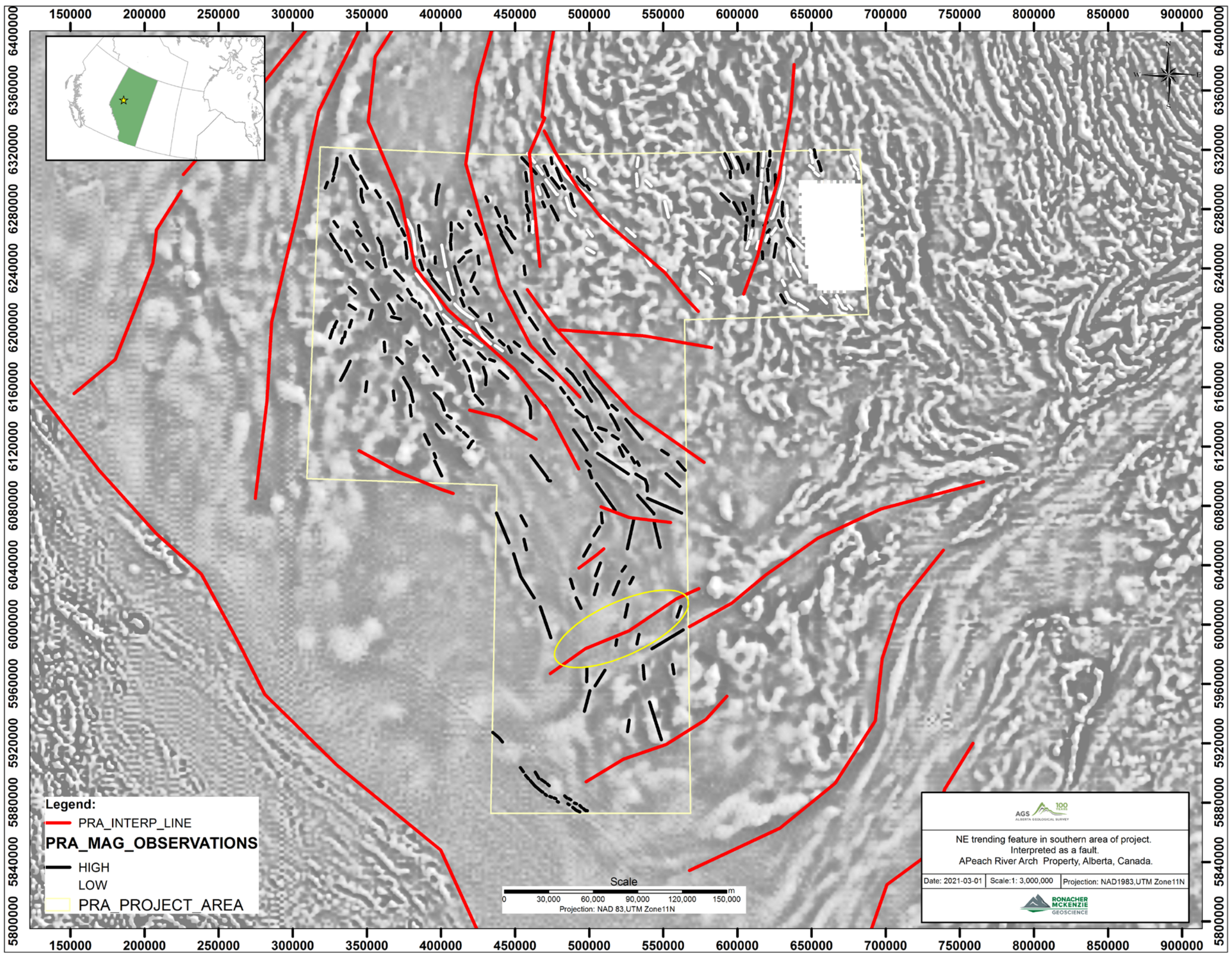


*Figure 4-8. NE trending feature in southern area of project. Interpreted as a fault. PRA_EXT_RTP_VD2_BW in background*

### *4.2.2 Southern Alberta south of Lethbridge*

A similar process was applied to the Southern Alberta area south of Lethbridge ("SAB"). The area has thinner sedimentary cover that PRA, with an average of 2000 m in the centre of the project and deepening to 5300 m towards the west.

Given the proximity of the project to the Canada/United States border, the Magnetic Map of North America provided by the USGS was primarily used for the regional overview. However this dataset is noted to be of poorer quality compared to the dataset provided by Natural Resources Canada. There appear to be artifacts in the regional dataset, especially south of the project area in the US.

Magnetic observations were observed and are displayed in Figure 4-9. Once observations were complete, a separate layer of interpretation lines was created and is displayed in Figure 4-10.

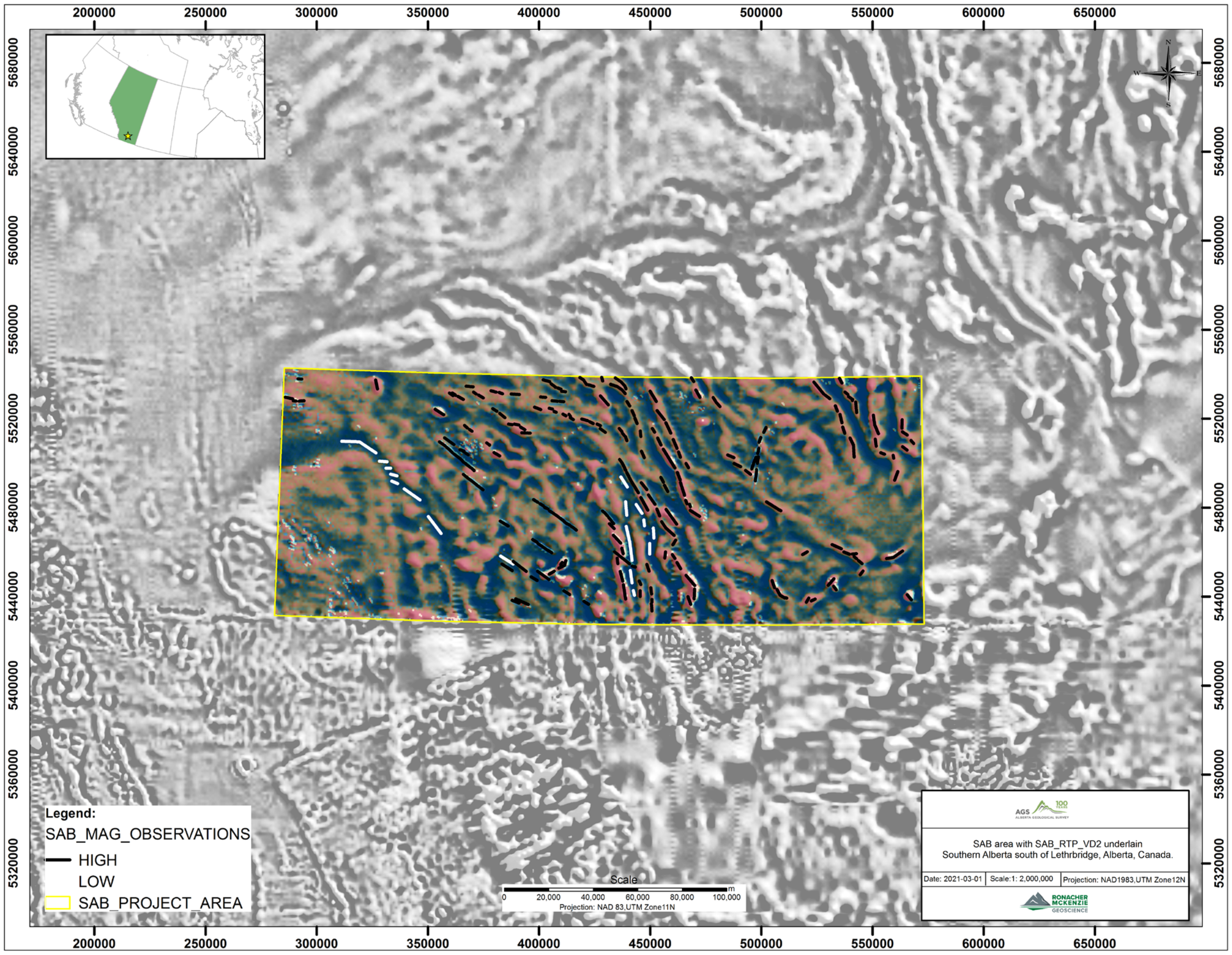


*Figure 4-9. SAB area displayed in colour (SAB_RTP_VD2) with SAB_EXT_RTP_VD2_BW underlain*

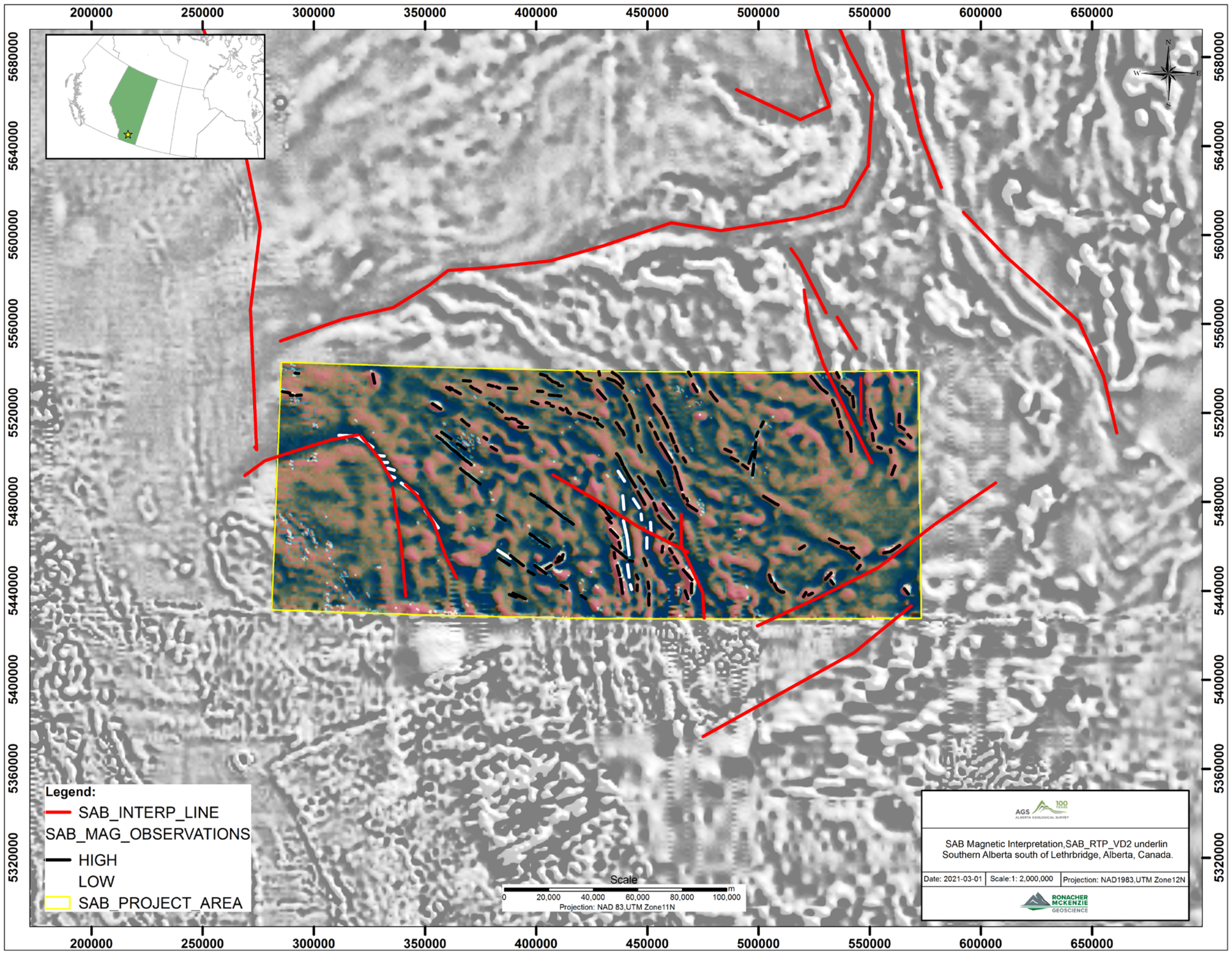


*Figure 4-10. SAB interpretation layer. SAB_RTP_VD1 in colour with SAB_EXT_RTP_VD2_BW underlain*

Several high-frequency NW trending features were noted throughout the dataset. These features were discussed and modelled by Ross et al. (1997). They suggested they may be dyke-like igneous bodies in the sedimentary column, and correlated them with Eocene mafic potassic dykes in the Sweet Grass Hills of SAB. An example of these features can be seen in Figure 4-11.

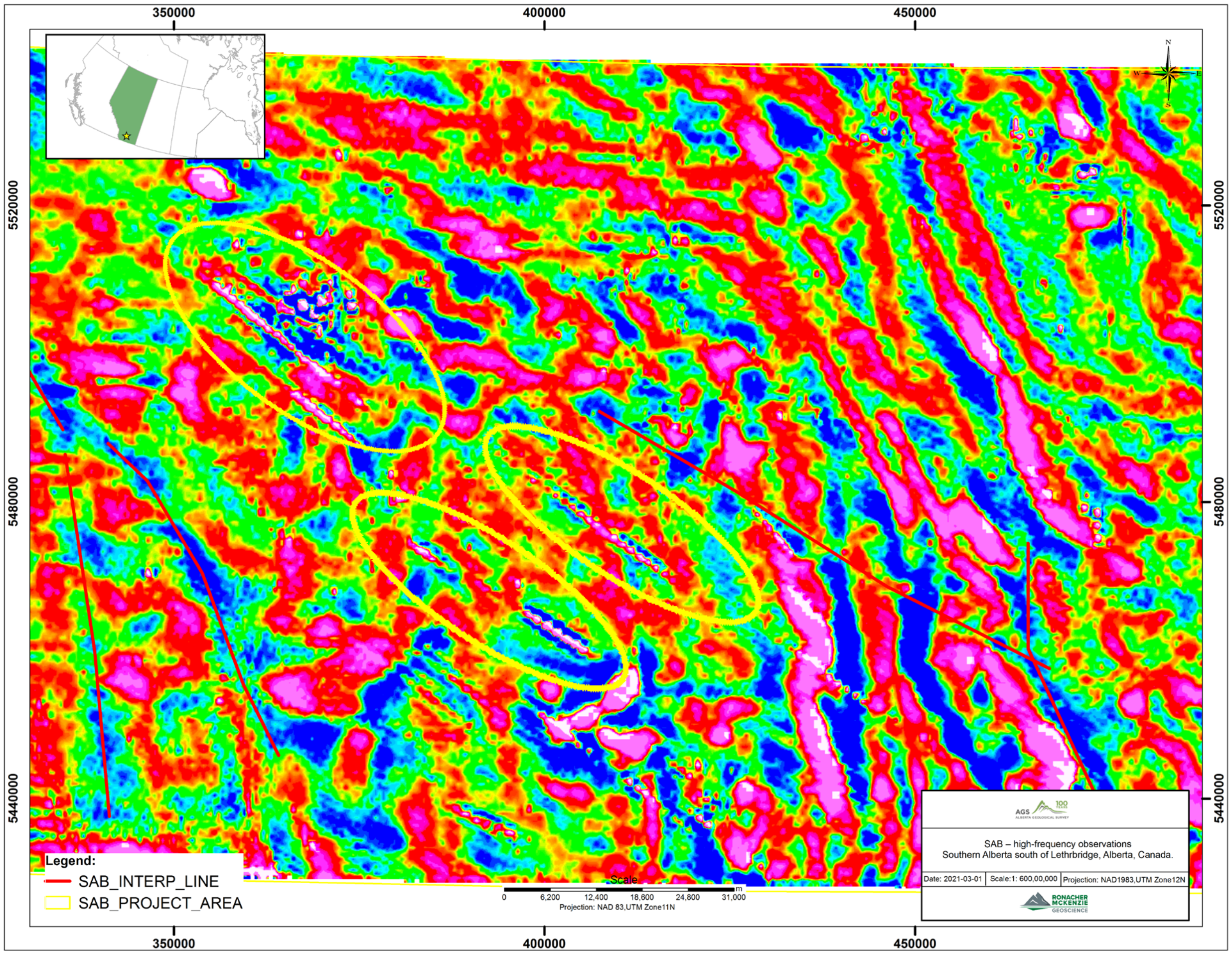


*Figure 4-11. SAB – high-frequency NW trending magnetic features noted on SAB_RTP_VD2. Interpreted by Ross et al (1997) as dyke-like igneous bodies intruding sedimentary column.*

Figure 4-12 highlights two intersecting structures interpreted in the western part of the project. The NW trending structures is interpreted to be a fault, as suggested on the RTP in Figure 4-13.

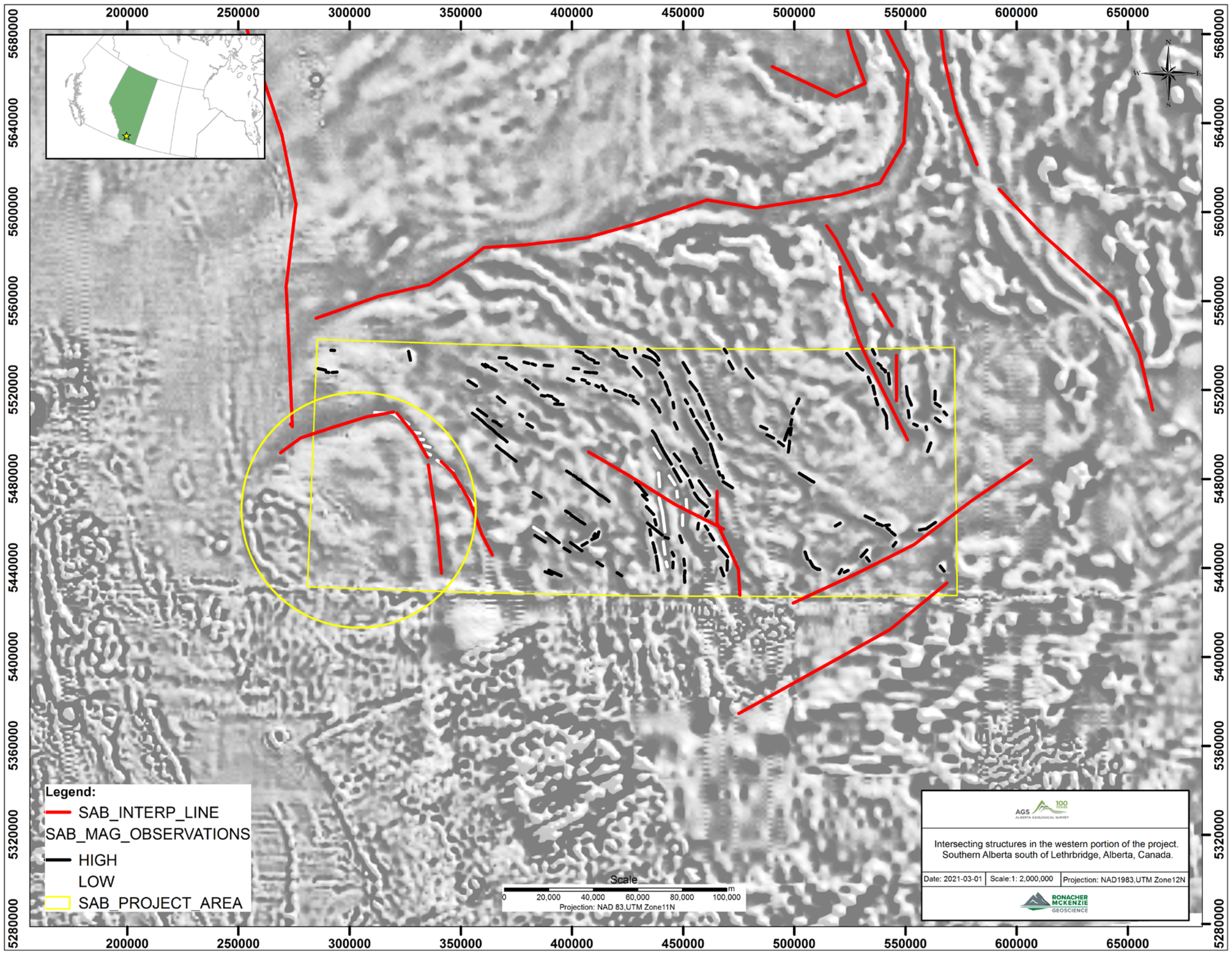


*Figure 4-12. SAB – Intersecting structures in the western portion of the project. SAB_EXT_RTP_VD2_BW underlain.*

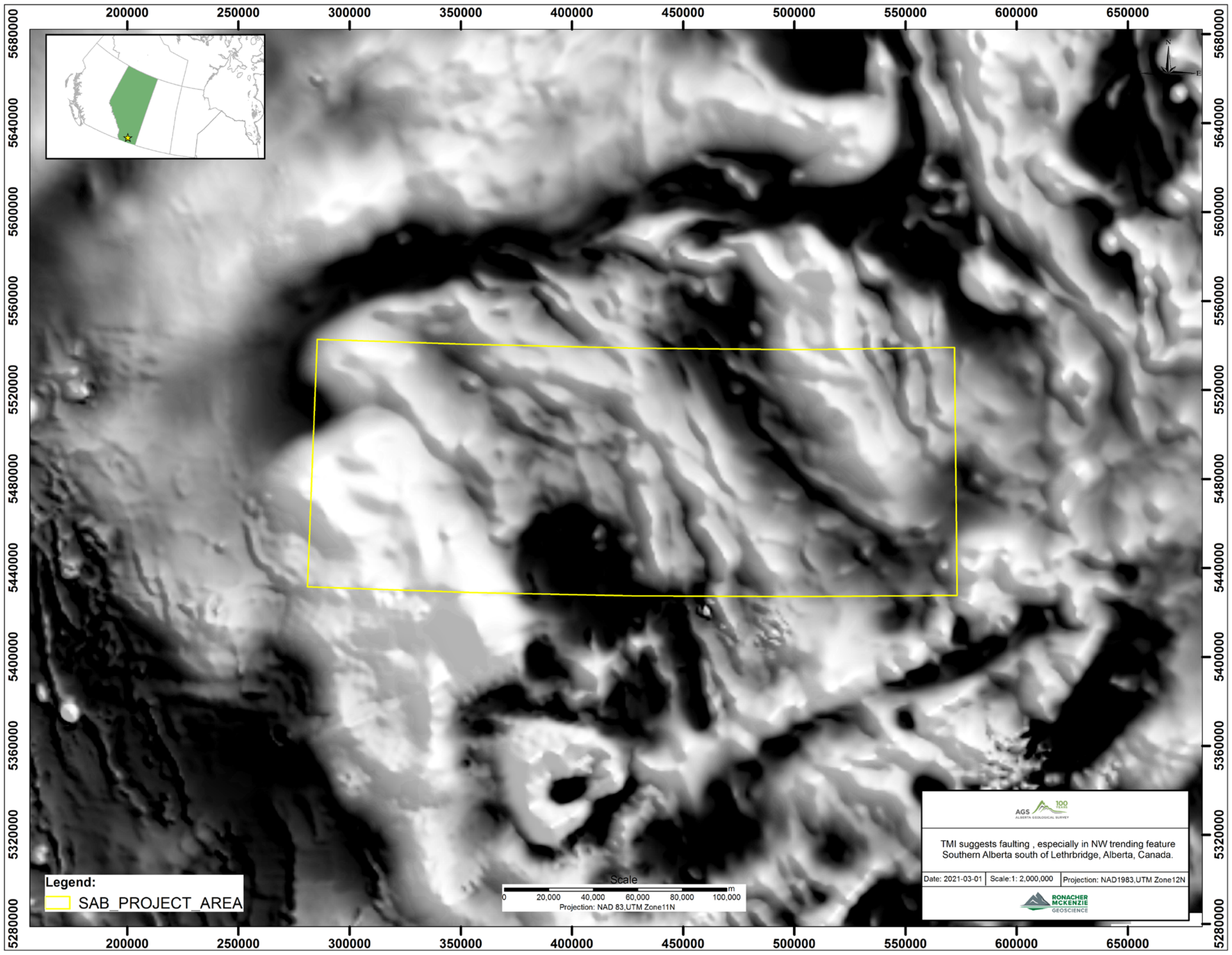


*Figure 4-13. SAB – TMI suggests faulting, especially in NW trending feature. SAB_EXT_RTP_BW displayed.*

A NW trending feature is observed in the centre of the project area and is highlighted in Figure 4-14. The feature is noted to break several north-south trending magnetic units and is interpreted as a fault.

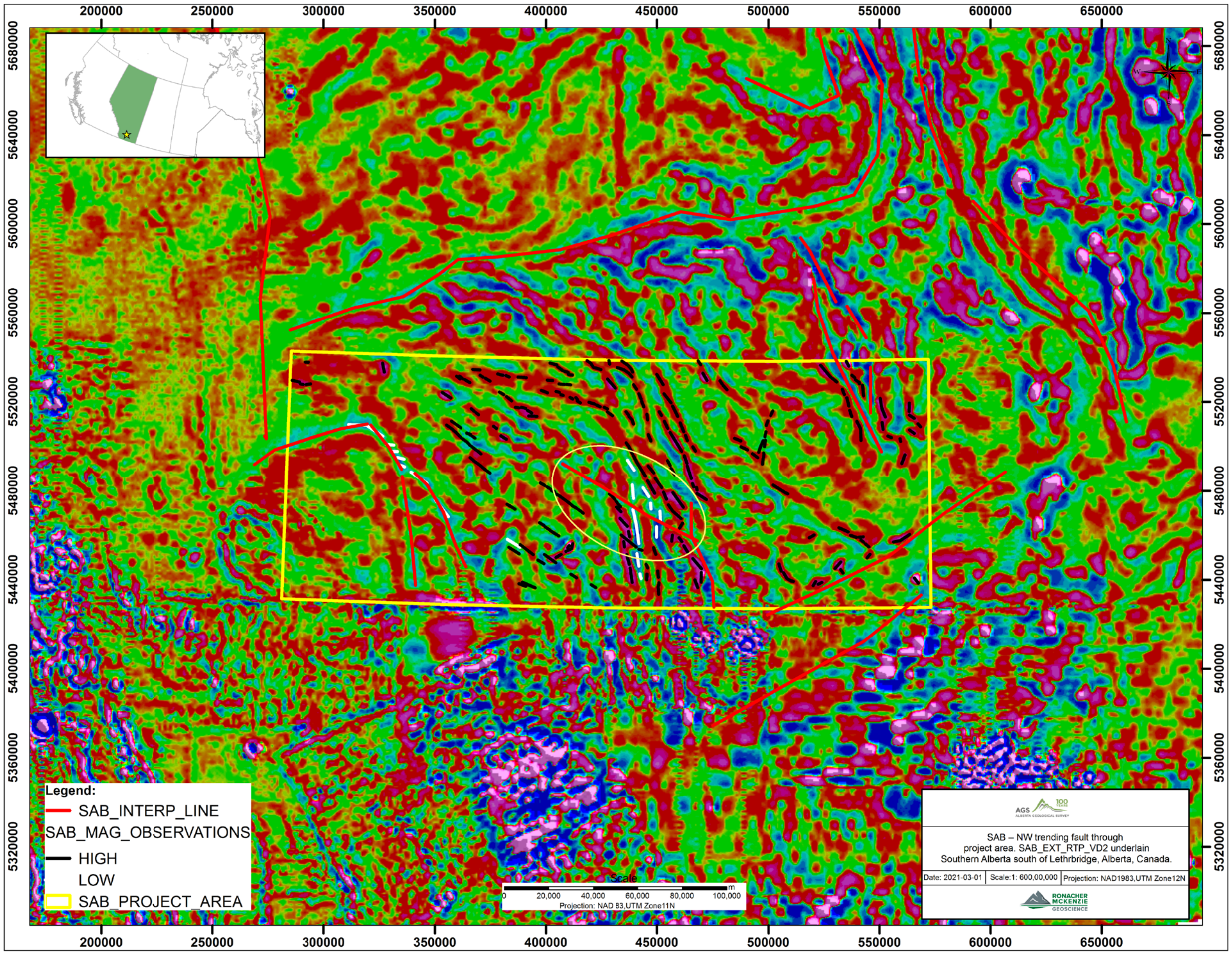


*Figure 4-14. SAB – NW trending fault through project area. SAB_EXT_RTP_VD2 underlain*

A N to NNW trending set of features occurs in the northeastern area of the project, displayed in Figure 4-15. The offset in the magnetics suggest these features are faults.

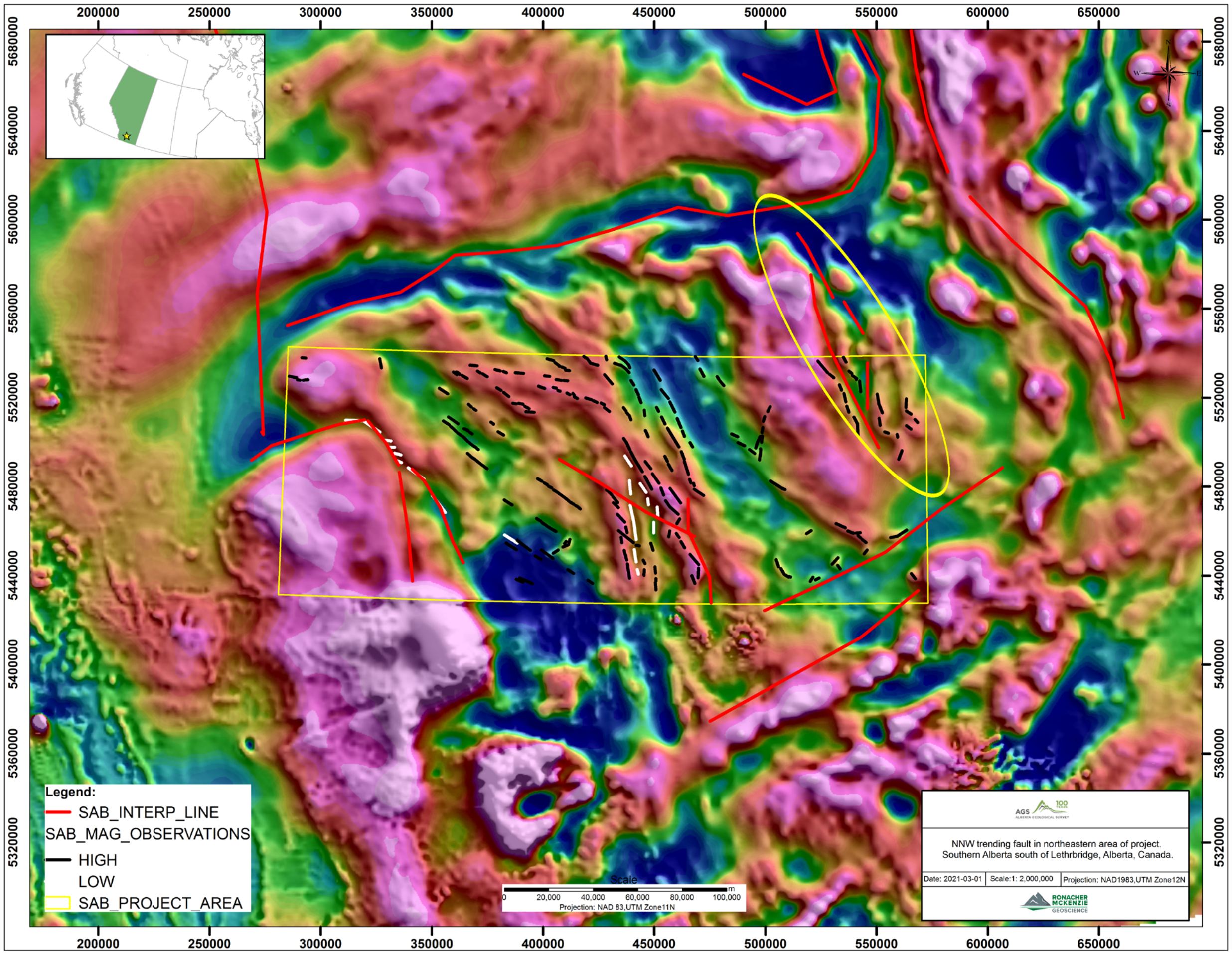


*Figure 4-15. SAB – NNW trending fault in northeastern area of project. SAB_EXT_RTP (colour) transparently overlaying SAB_EXT_RTP_VD2_BW.*

### 4.3 Digital Elevation Model

SRTM digital elevation data was reviewed and clipped to each project area. Several linear features were observed. In addition, a first-vertical derivative was calculated to enhance surficial linear features. These features are surficial and a correlation with the magnetic observations is not expected because the latter reflect features in the basement. Observations for the PRA project are found in Figure 4-16 and observations for the SAB project area are found in Figure 4-17.

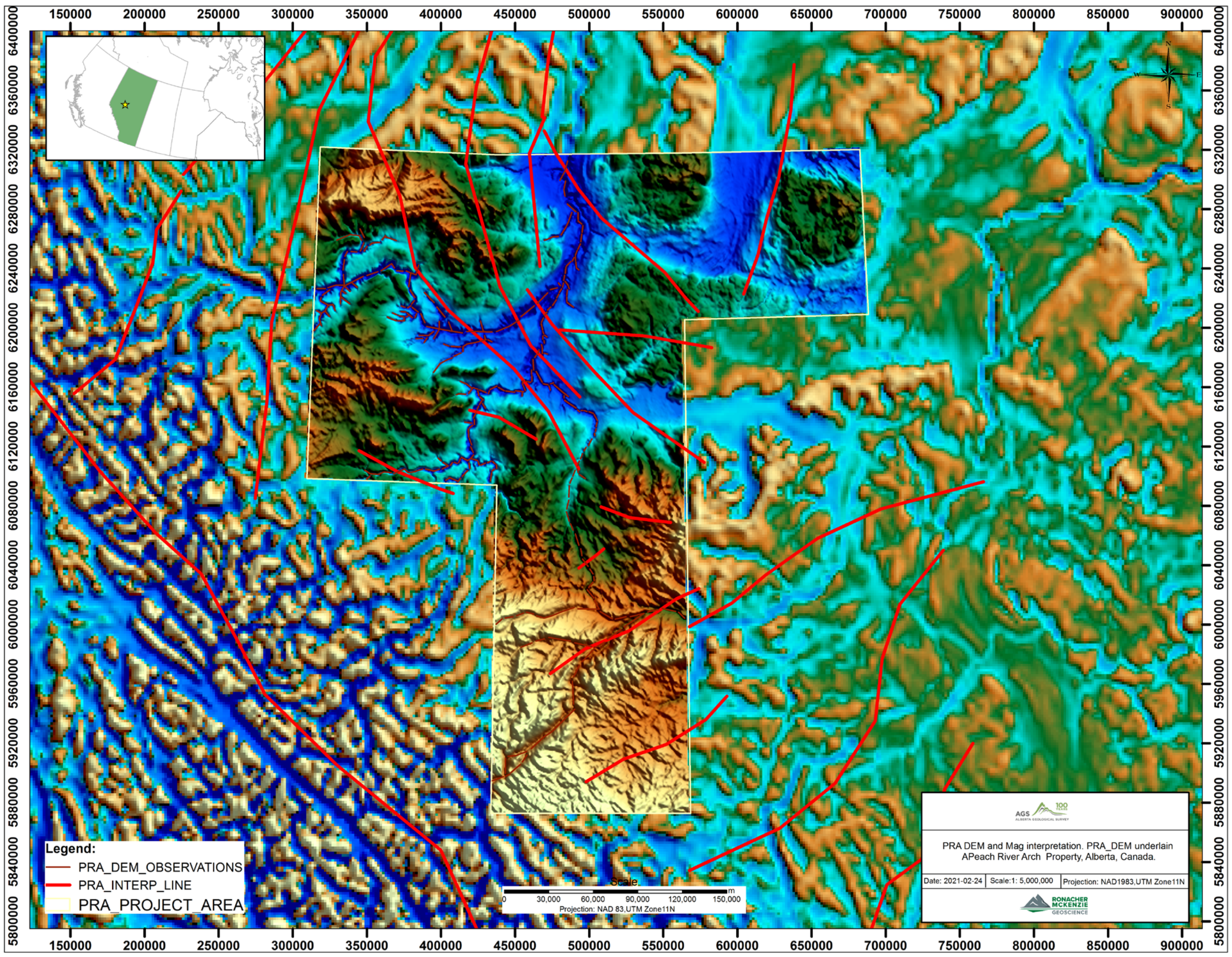


*Figure 4-16. DEM observations in PRA area. PRA_DEM overlying PRA_EXT_DEM_VD1 displayed*

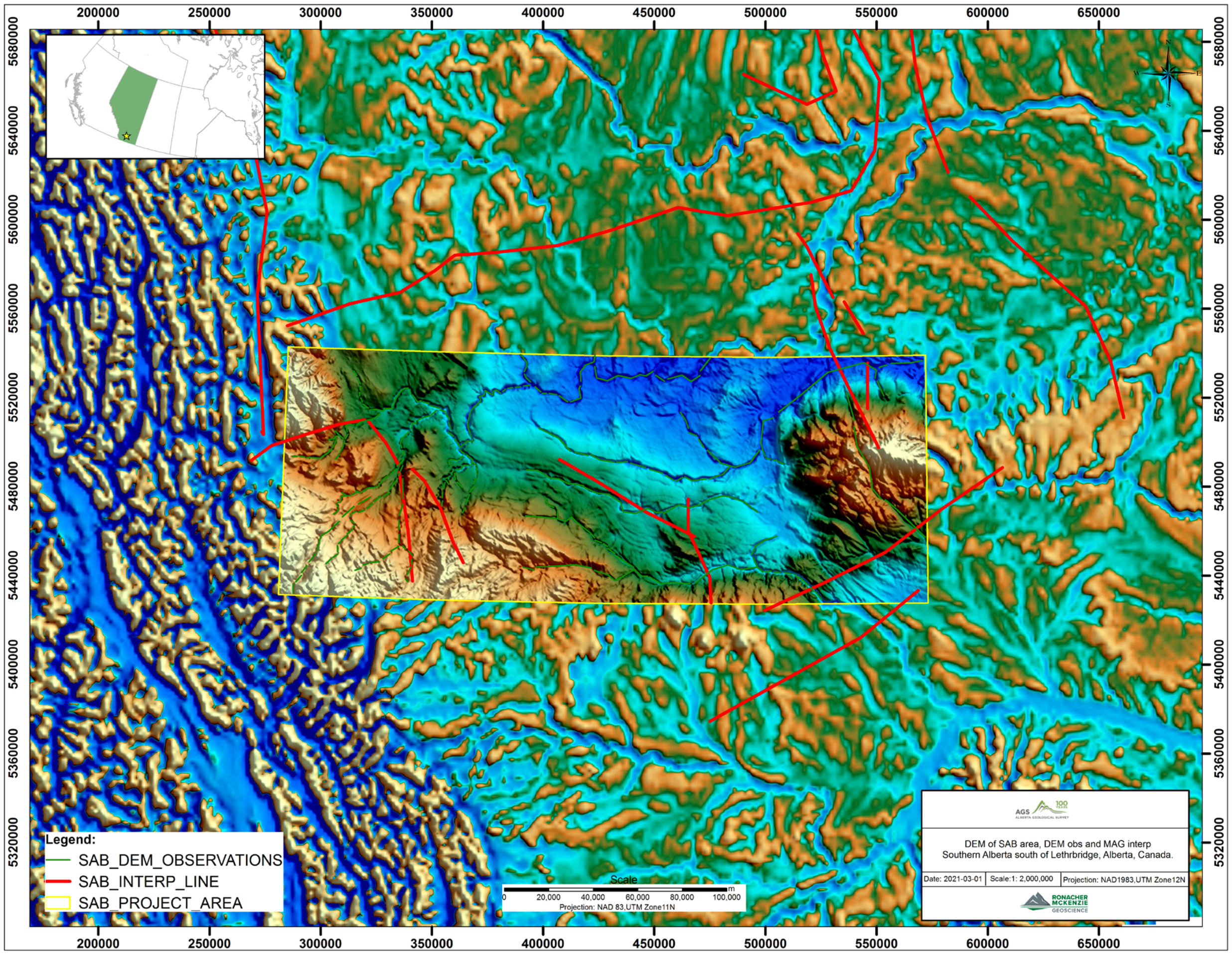


*Figure 4-17. DEM observations in SAB area. SAB_DEM overlying SAB_EXT_DEM_VD1 displayed*

## 4.4 Gravity Data

Gravity data was obtained from Natural Resources Canada's Geoscience Data Repository for Geophysical Data (Government of Canada, 2016). It was not reviewed in detail but magnetic observations and interpretations were examined against the gravity data corroborated both project area interpretations.

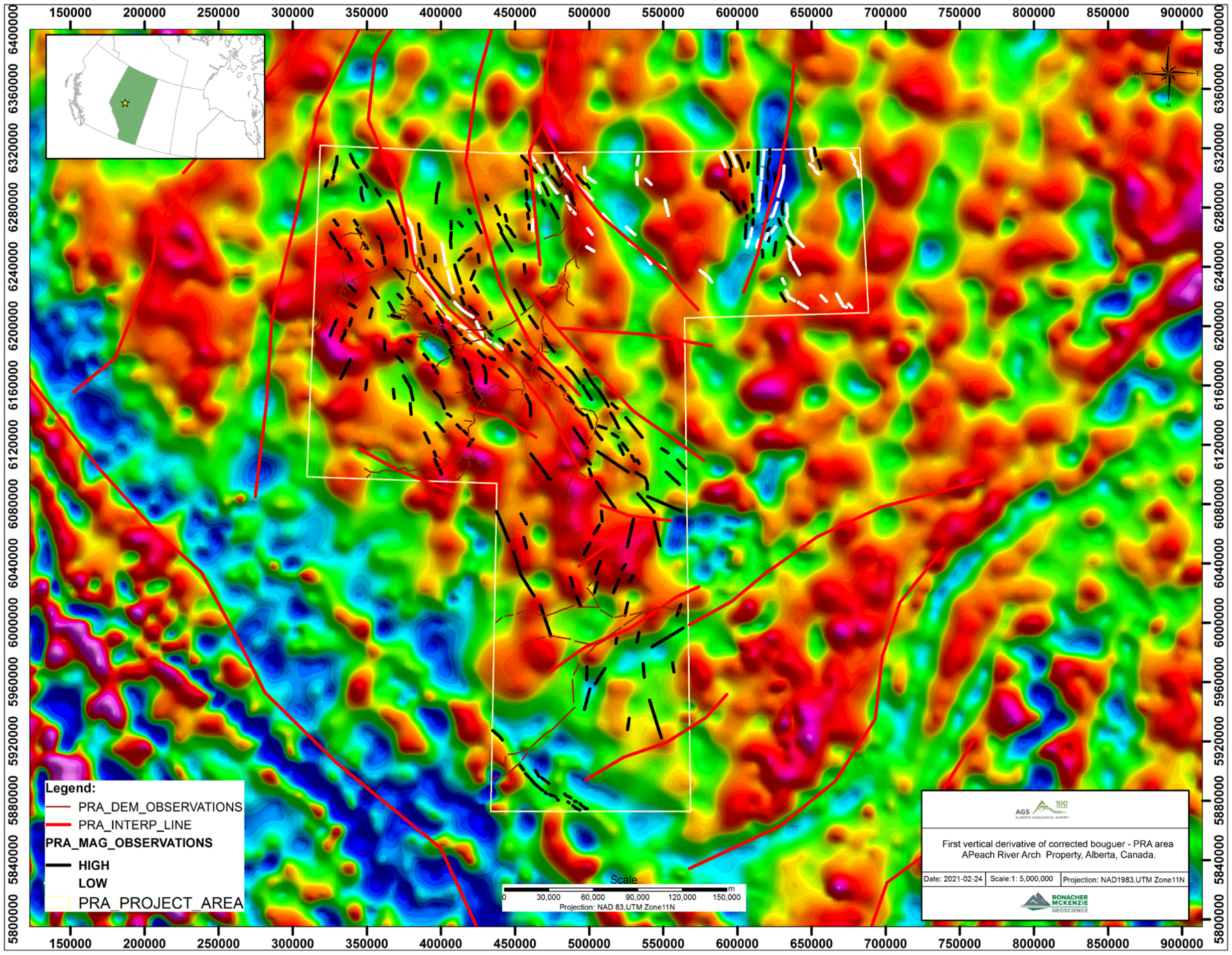


*Figure 4-18. First vertical derivative of corrected bouguer - PRA area*

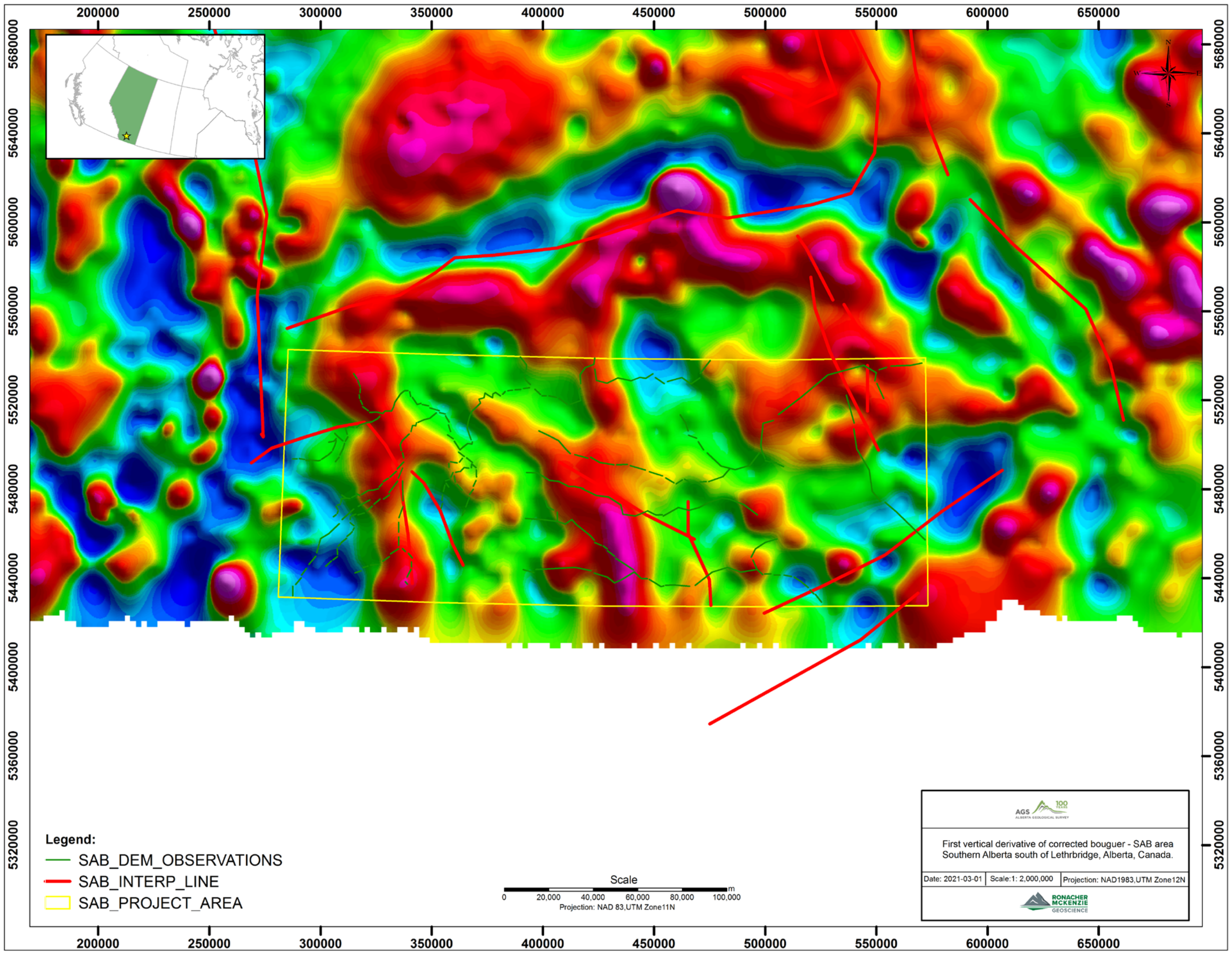


*Figure 4-19. First vertical derivative of corrected bouguer - SAB area*

## 5 Conclusions and Recommendations

Several structures were delineated from the magnetic data as a result of this analysis.

The features delineated in the PRA area are long and continuous with few breaks suggesting a ductile environment. Few cross-cutting relationships were observed. It should be noted that the magnetics is likely reflecting the basement geology, and given the substantial sedimentary cover, only the most strongly magnetic features are delineated, so it is difficult to conclude definitively that the environment was high pressure/temperature for ductile conditions.

Apart from the Great Slave Lake Shear Zone occurring north of the PRA area, no other major tectonic structures described by Burwash (1989) are noted within the PRA or SAB areas.

In the centre of the SAB area, a NS trend of magnetic features was observed. This trend is crosscut by an interpreted fault. High-frequency NW trending features were observed, previously interpreted as a mafic dyke swarm intruding the sedimentary column (Ross, Mariano, Dumont, Kjarsgaard, & Teskey, 1997).

It is recommended to integrate the interpreted structures with other data that the AGS may use for the ongoing interpretation in efforts to delineate zones for He and Li prospectivity.

It is also recommended to review other data in the area (seismic, Lithoprobe) to further understand the basement geology structure.

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# 7 Statement of Authorship

This report, titled “Alberta Geological Survey: He and Li project”, dated February 28th, 2021 and prepared for Alberta Geological survey, was completed and signed by the following authors:

“signed and sealed”

Jenna McKenzie, P.Geo.
28 February 2021
Toronto, ON

“signed and sealed”

Elisabeth Ronacher, PhD, P.Geo.
28 February 2021
Sudbury, ON

“signed and sealed”

Farzaneh Farahani, MSc, P.Geo.
28 February 2021
Toronto, ON

# Appendix 1 – Statement of Qualifications

**STATEMENT OF QUALIFICATIONS**

**Jenna McKenzie**
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**Toronto, ON, Canada**
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**M: +1 (647) 378-2648**

I, Jenna McKenzie, do hereby certify that:

1. I am the Principal Geophysicist of Ronacher McKenzie Geoscience.
2. I am responsible for report titled “Alberta Geological Survey: He and Li project” dated February 28th, 2021, and prepared for Alberta Geological Survey.
3. I hold the following academic qualifications: Hons.B.Sc. Applied Physics – Geophysics, University of Toronto, Toronto, ON, Canada.
4. I am a member in good standing of the Professional Geoscientists Ontario (PGO, member # 1653) and the Canadian Exploration Geophysical Society (KEGS).
5. I have worked on exploration projects worldwide (including Canada, USA, Mexico, Dominican Republic, Angola, Democratic Republic of Congo, Zambia, Republic of South Africa, Russia, Turkey and Indonesia). I have worked on porphyry-copper, gold, diamond, Ni-Cu-PGE, potash and rare-element pegmatites deposits since 2001.
6. This report is compiled from data obtained from the public domain and company data provided by Alberta Geological Survey., I have not visited the property.
7. I do not hold any interest in Alberta Geological Survey., nor in the property discussed in this report, nor in any other property held by this company, nor do I expect to receive any interest as a result of writing this report.

Dated this 28th Day of February, 2021

“signed and sealed”

________________________________
Jenna McKenzie, P.Geo.
Ronacher McKenzie Geoscience

## STATEMENT OF QUALIFICATIONS

**Elisabeth Ronacher**
**Ronacher McKenzie Geoscience Inc.**
**Sudbury, ON, Canada**
**Elisabeth.Ronacher@rmgeoscience.com**
**P: +1 (705) 419-1508**

I, Elisabeth Ronacher, do hereby certify that:

1. I am the Principal Geologist at Ronacher McKenzie Geoscience.
2. I am jointly responsible for the report titled "Alberta Geological Survey: He and Li project" dated February 28th, 2021, and prepared for Alberta Geological Survey.
3. I hold the following academic qualifications: M.Sc. Geology (1997), University of Vienna, Vienna, Austria; Ph.D. Geology (2002), University of Alberta, Edmonton, Canada.
4. I am a member in good standing of the Association of Professional Geoscientists Ontario (PGO, member # 1476), the Society of Economic Geologists (SEG) and the Society for Geology Applied to Mineral Deposits (SGA).
5. I have worked on exploration projects worldwide (including Canada, Mongolia, China, Austria) and on a variety of commodities including Au, Cu, base-metal, Cu-Ni PGE and U deposits since 1997.
6. This report is compiled from data obtained from the public domain and company data provided by Alberta Geological Survey., I have not visited the property.
7. I do not hold any interest in Alberta Geological Survey., nor in the property discussed in this report, nor in any other property held by this company, nor do I expect to receive any interest as a result of writing this report.

Dated this 28th Day of February, 2021

"signed and sealed"

Elisabeth Ronacher, Ph.D., P.Geo.
Ronacher McKenzie Geoscience

**STATEMENT OF QUALIFICATIONS**

**Farzaneh Farahani**
**Ronacher McKenzie Geoscience Inc.**
**Toronto, ON, Canada**
**Farzaneh.Farahani@rmgeoscience.com**
**☎ 674-884-3424**

I, Farzaneh Farahani, do hereby certify that:

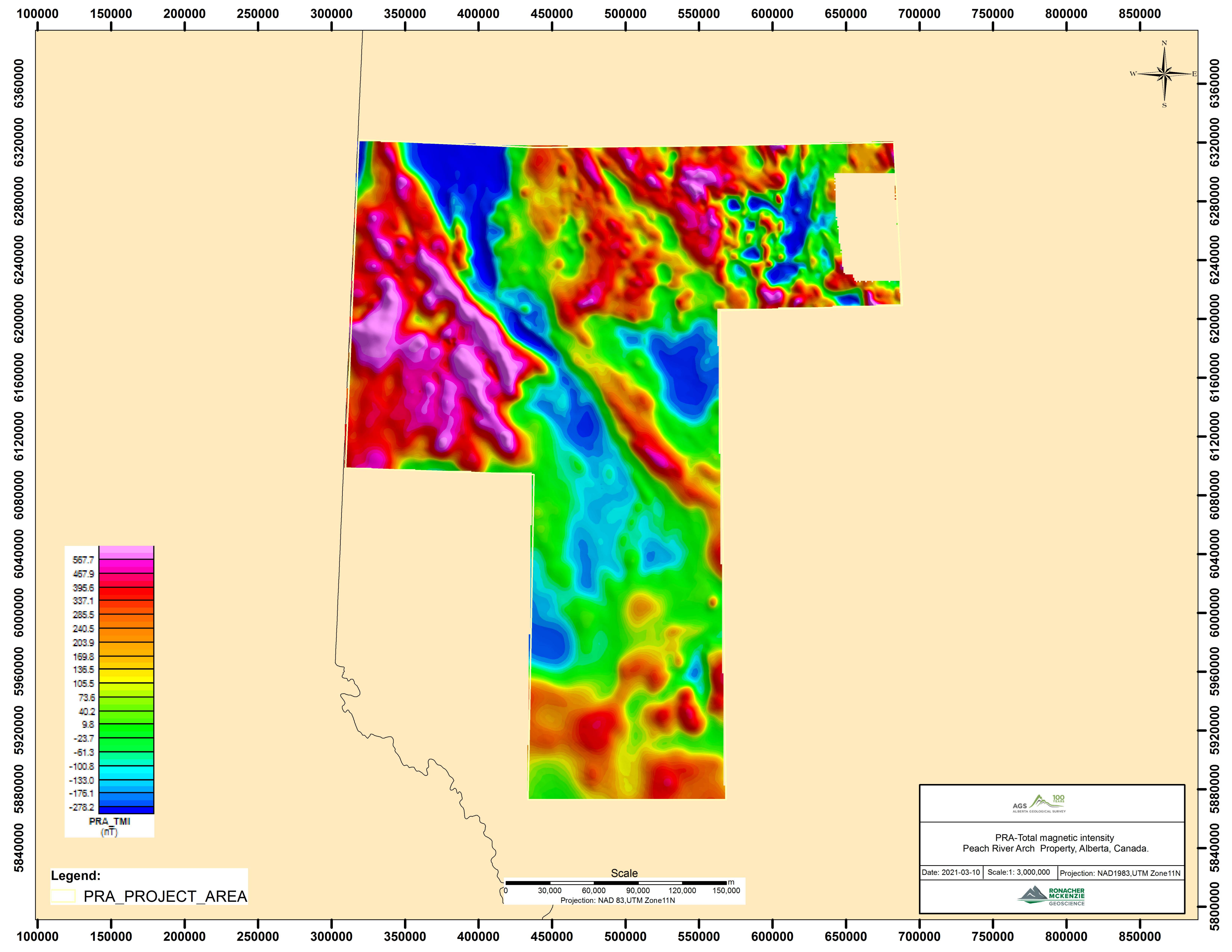
1. I am a Project Geophysicist at Ronacher McKenzie Geoscience.
2. I am jointly responsible or the report titled “Alberta Geological Survey: He and Li project” dated February 28th, 2021, and prepared for Alberta Geological Survey.
3. I hold the following academic qualifications: B.Sc. Applied Physics (2004), University of Damghan, Iran, and Hons. M.Sc. Applied Geophysics (2009), Science and Research branch of Tehran Azad University, Tehran, Iran.
4. I am a member in good standing of the Association of Professional Geoscientists Ontario (PGO, member #3074) and the Canadian Exploration Geophysical Society (KEGS).
5. I have worked on exploration projects worldwide (including Canada, Sweden, Iran and Turkey). I have worked on porphyry-copper, gold, diamond, Iron, and geothermal resource exploration since 2004.
6. This report is compiled from data obtained from the public domain and company data provided by Alberta Geological Survey., I have not visited the property.
7. I do not hold any interest in Alberta Geological Survey., nor in the property discussed in this report, nor in any other property held by this company, nor do I expect to receive any interest as a result of writing this report.

Dated this 28th Day of February, 2021

“signed and sealed”

Farzaneh Farahani, M.Sc., P.Geo.
Ronacher McKenzie Geoscience Inc.

# Appendix 2 – Map Products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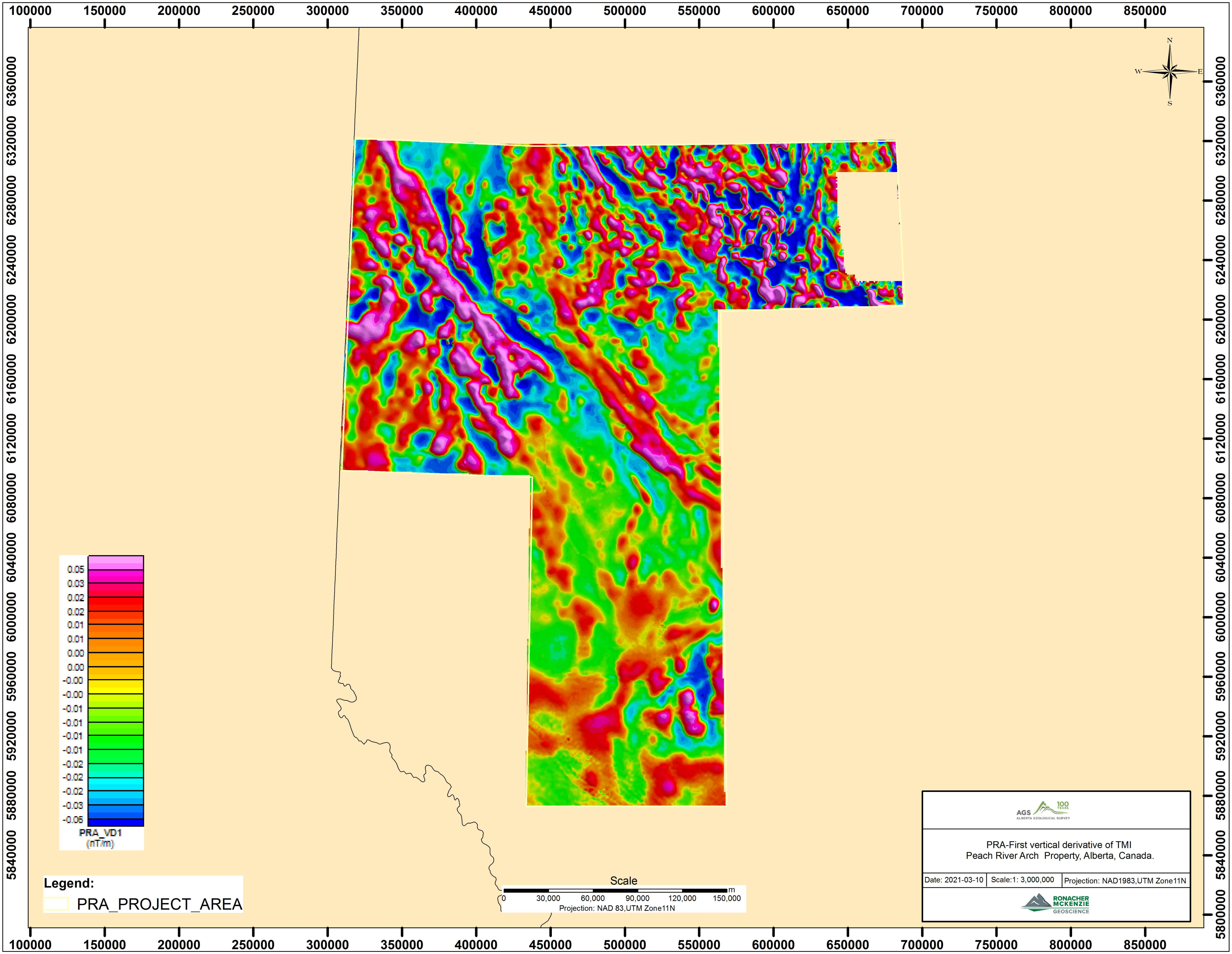
6360000 6320000 6280000 6240000 6200000 6160000 6120000 6080000 6040000 6000000 5960000 5920000 5880000 5840000 5800000
N
S
W
E
567.7
457.9
395.6
337.1
285.5
240.5
203.9
169.8
136.5
105.5
73.6
40.2
9.8
-23.7
-61.3
-100.8
-133.0
-176.1
-278.2
PRA_TMI
(nT)
Legend:
PRA_PROJECT_AREA
Scale
0 30,000 60,000 90,000 120,000 150,000 m
Projection: NAD 83,UTM Zone11N
AGS ALBERTA GEOLOGICAL SURVEY 100 YEARS
PRA-Total magnetic intensity
Peach River Arch Property, Alberta, Canada.
Date: 2021-03-10
Scale:1: 3,000,000
Projection: NAD1983,UTM Zone11N
RONACHER MCKENZIE GEOSCIENCE



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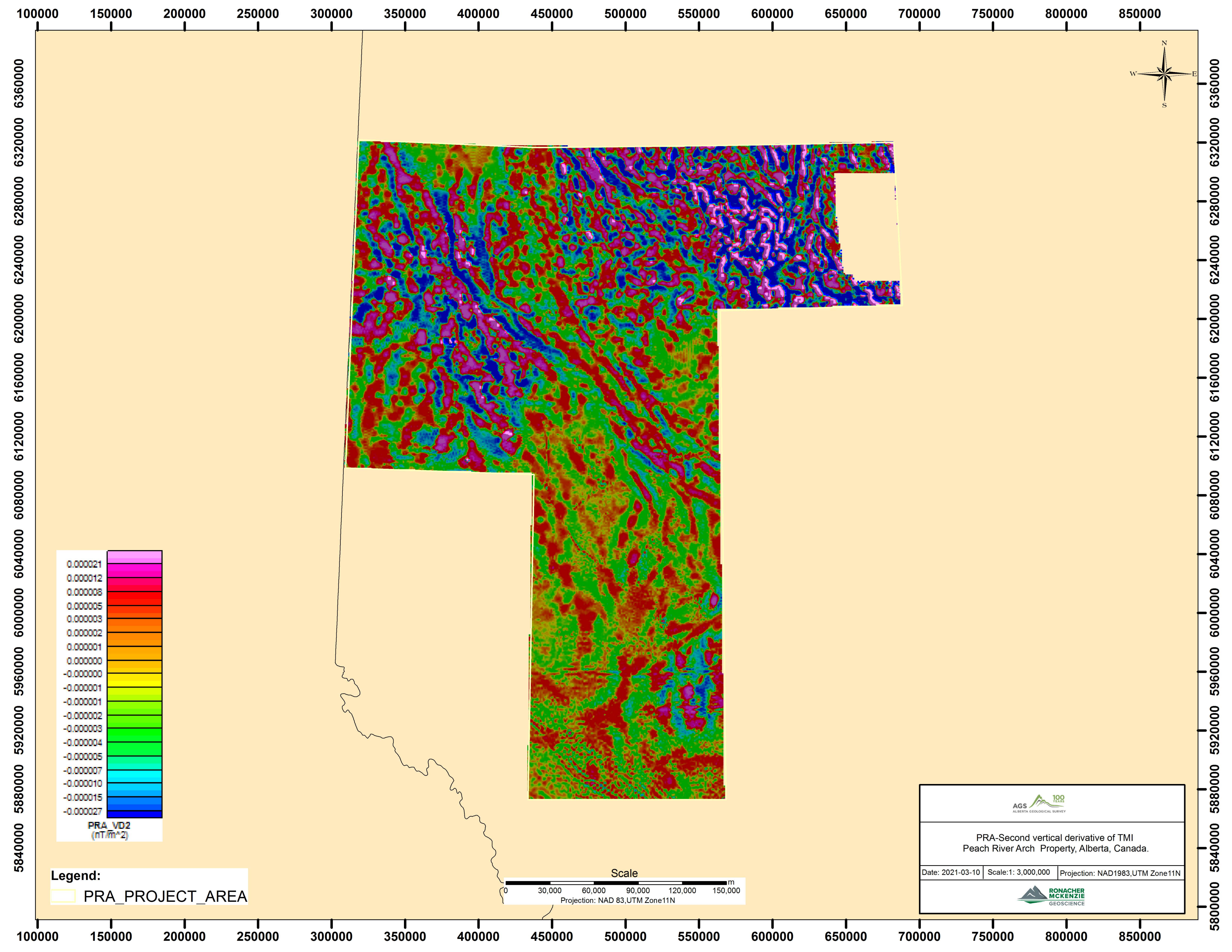
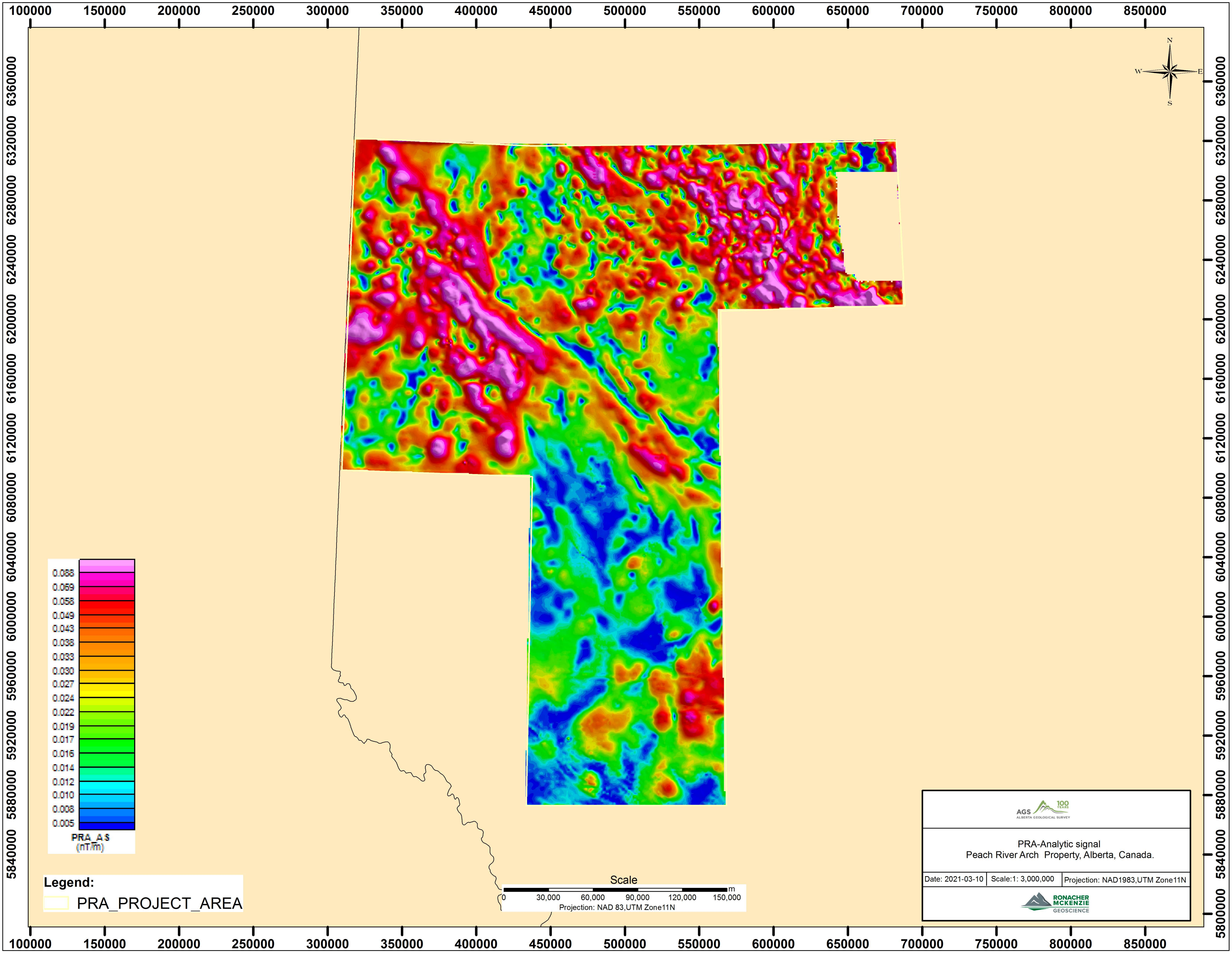
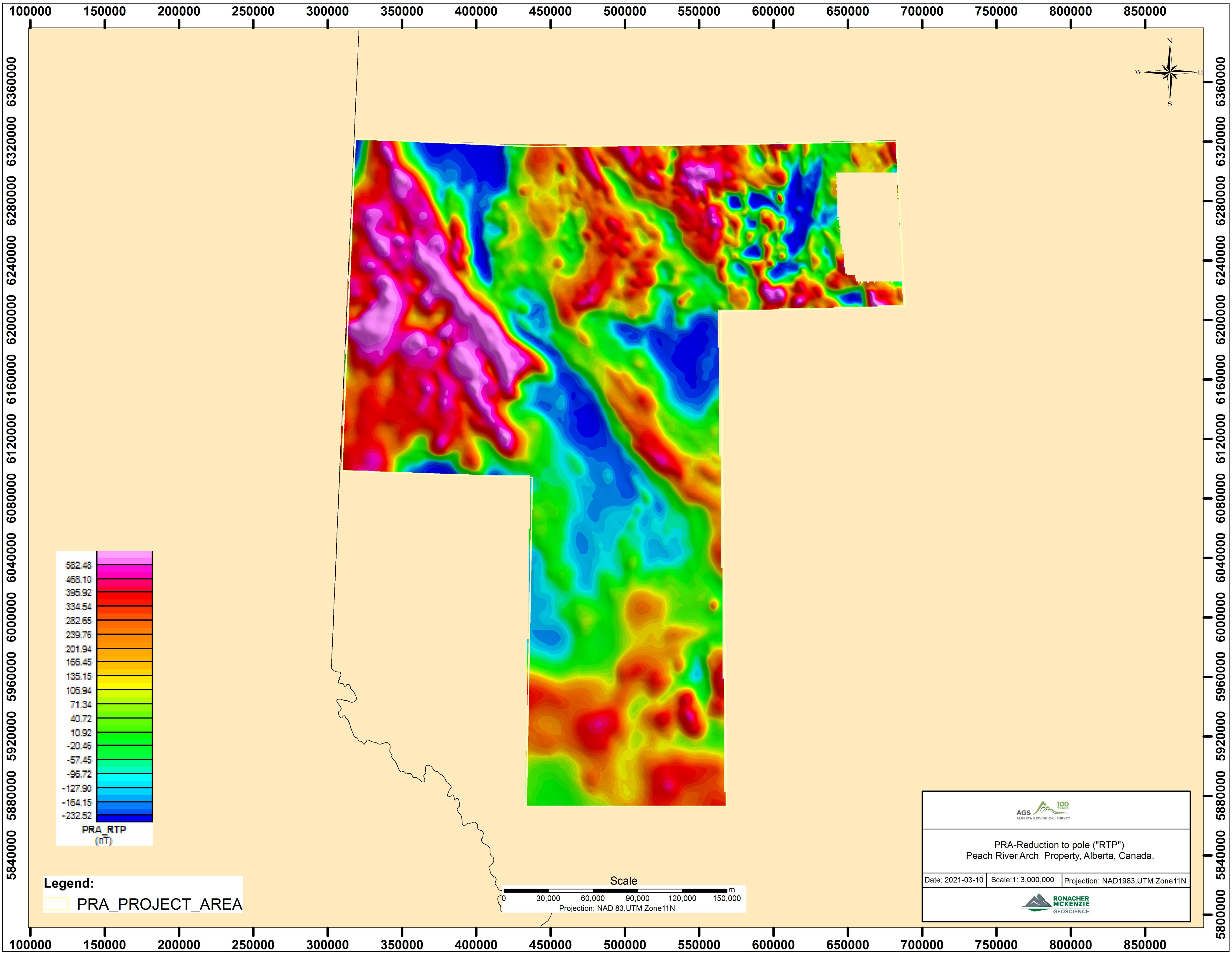
6360000 6320000 6280000 6240000 6200000 6160000 6120000 6080000 6040000 6000000 5960000 5920000 5880000 5840000 5800000
N
W
E
S
0.05
0.03
0.02
0.02
0.01
0.01
0.00
0.00
-0.00
-0.00
-0.01
-0.01
-0.01
-0.01
-0.02
-0.02
-0.02
-0.03
-0.06
PRA_VD1
(nT/m)
Legend:
PRA_PROJECT_AREA
Scale
0 30,000 60,000 90,000 120,000 150,000 m
Projection: NAD 83,UTM Zone11N
AGS ALBERTA GEOLOGICAL SURVEY 100 YEARS
PRA-First vertical derivative of TMI
Peach River Arch Property, Alberta, Canada.
Date: 2021-03-10
Scale:1: 3,000,000
Projection: NAD1983,UTM Zone11N
RONACHER MCKENZIE GEOSCIENCE

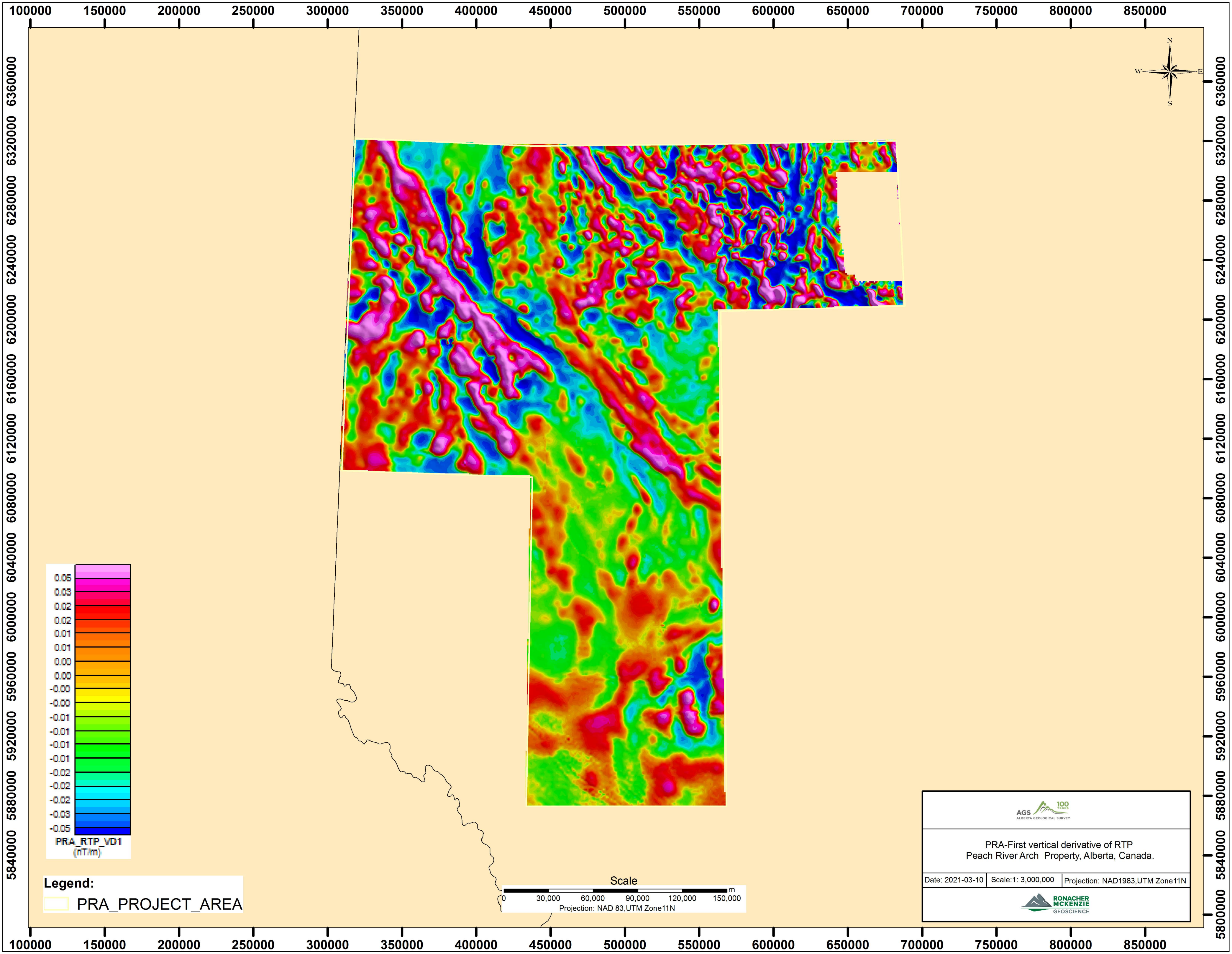


100000
150000
200000
250000
300000
350000
400000
450000
500000
550000
600000
650000
700000
750000
800000
850000
6360000
6320000
6280000
6240000
6200000
6160000
6120000
6080000
6040000
6000000
5960000
5920000
5880000
5840000
5800000
N
S
W
E
0.000021
0.000012
0.000008
0.000005
0.000003
0.000002
0.000001
0.000000
-0.000000
-0.000001
-0.000001
-0.000002
-0.000003
-0.000004
-0.000005
-0.000007
-0.000010
-0.000015
-0.000027
PRA_VD2
(nT/m^2)
Legend:
PRA_PROJECT_AREA
Scale
m
0
30,000
60,000
90,000
120,000
150,000
Projection: NAD 83,UTM Zone11N
AGS
ALBERTA GEOLOGICAL SURVEY
100 YEARS
PRA-Second vertical derivative of TMI
Peach River Arch Property, Alberta, Canada.
Date: 2021-03-10
Scale:1: 3,000,000
Projection: NAD1983,UTM Zone11N
RONACHER MCKENZIE
GEOSCIENCE



100000 150000 200000 250000 300000 350000 400000 450000 500000 550000 600000 650000 700000 750000 800000 850000
5800000 5840000 5880000 5920000 5960000 6000000 6040000 6080000 6120000 6160000 6200000 6240000 6280000 6320000 6360000
N
S
W
E
0.088
0.069
0.058
0.049
0.043
0.038
0.033
0.030
0.027
0.024
0.022
0.019
0.017
0.016
0.014
0.012
0.010
0.008
0.005
PRA_AS
(nT/m)
Legend:
PRA_PROJECT_AREA
Scale
m
0 30,000 60,000 90,000 120,000 150,000
Projection: NAD 83,UTM Zone11N
AGS
ALBERTA GEOLOGICAL SURVEY
100 YEARS
PRA-Analytic signal
Peach River Arch Property, Alberta, Canada.
Date: 2021-03-10
Scale:1: 3,000,000
Projection: NAD1983,UTM Zone11N
RONACHER MCKENZIE GEOSCIENCE


PRA-Reduction to pole ("RTP")
Peach River Arch Property, Alberta, Canada.
Date: 2021-03-10
Scale:1: 3,000,000
Projection: NAD1983,UTM Zone11N
AGS ALBERTA GEOLOGICAL SURVEY
100 YEARS
RONACHER MCKENZIE GEOSCIENCE
Scale
0 30,000 60,000 90,000 120,000 150,000 m
Projection: NAD 83,UTM Zone11N
Legend:
PRA_PROJECT_AREA
582.48
468.10
395.92
334.54
282.65
239.76
201.94
166.45
135.15
106.94
71.34
40.72
10.92
-20.46
-57.45
-96.72
-127.90
-164.15
-232.52
PRA_RTP
(nT)
N
S
E
W



PRA-First vertical derivative of RTP
Peach River Arch Property, Alberta, Canada.
Date: 2021-03-10
Scale:1: 3,000,000
Projection: NAD1983,UTM Zone11N
AGS ALBERTA GEOLOGICAL SURVEY
100 YEARS
RONACHER MCKENZIE GEOSCIENCE
Scale
0
30,000
60,000
90,000
120,000
150,000
m
Projection: NAD 83,UTM Zone11N
Legend:
PRA_PROJECT_AREA
PRA_RTP_VD1
(nT/m)
0.05
0.03
0.02
0.02
0.01
0.01
0.00
0.00
-0.00
-0.00
-0.01
-0.01
-0.01
-0.01
-0.02
-0.02
-0.02
-0.03
-0.05
N
S
W
E
100000
150000
200000
250000
300000
350000
400000
450000
500000
550000
600000
650000
700000
750000
800000
850000
6360000
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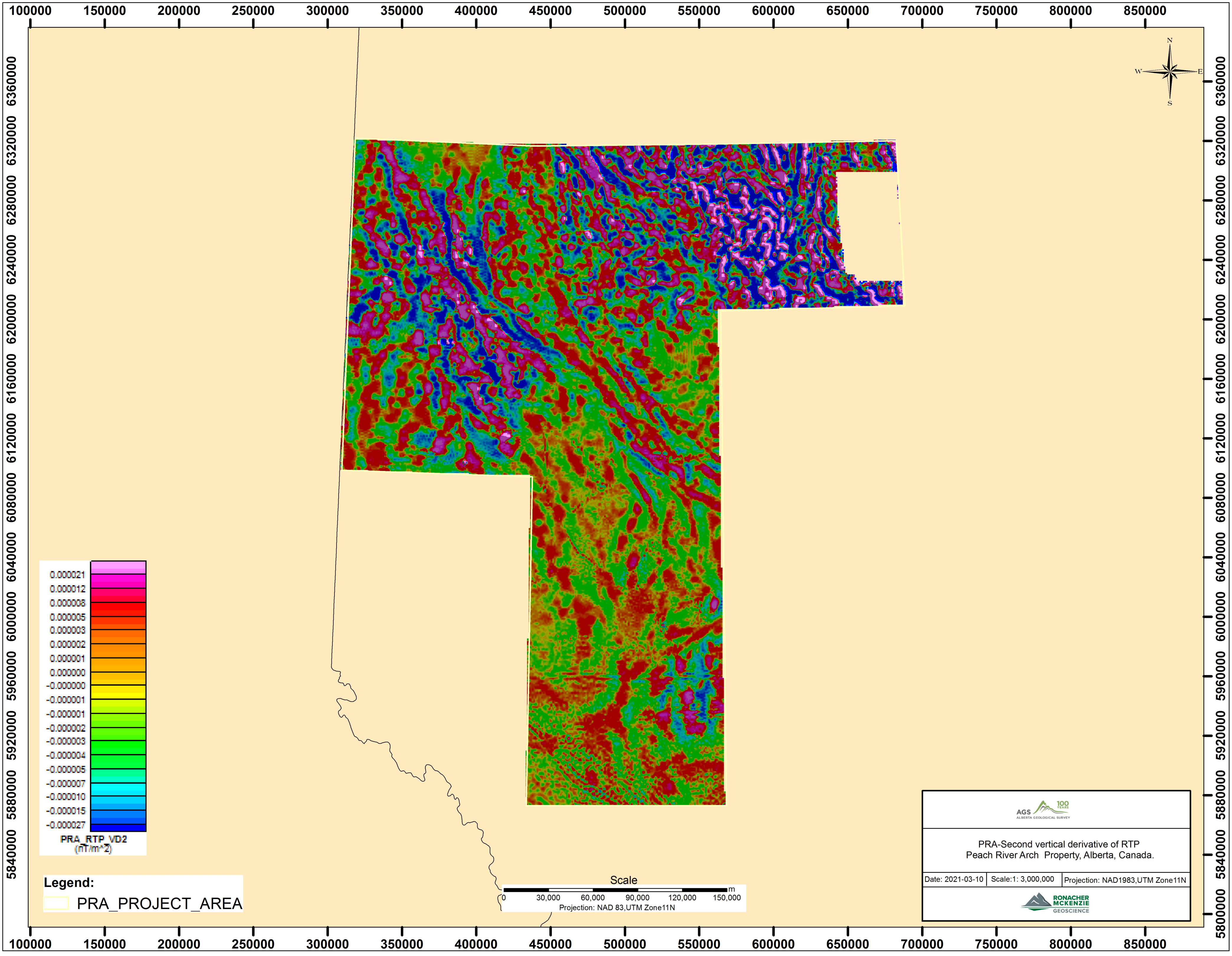
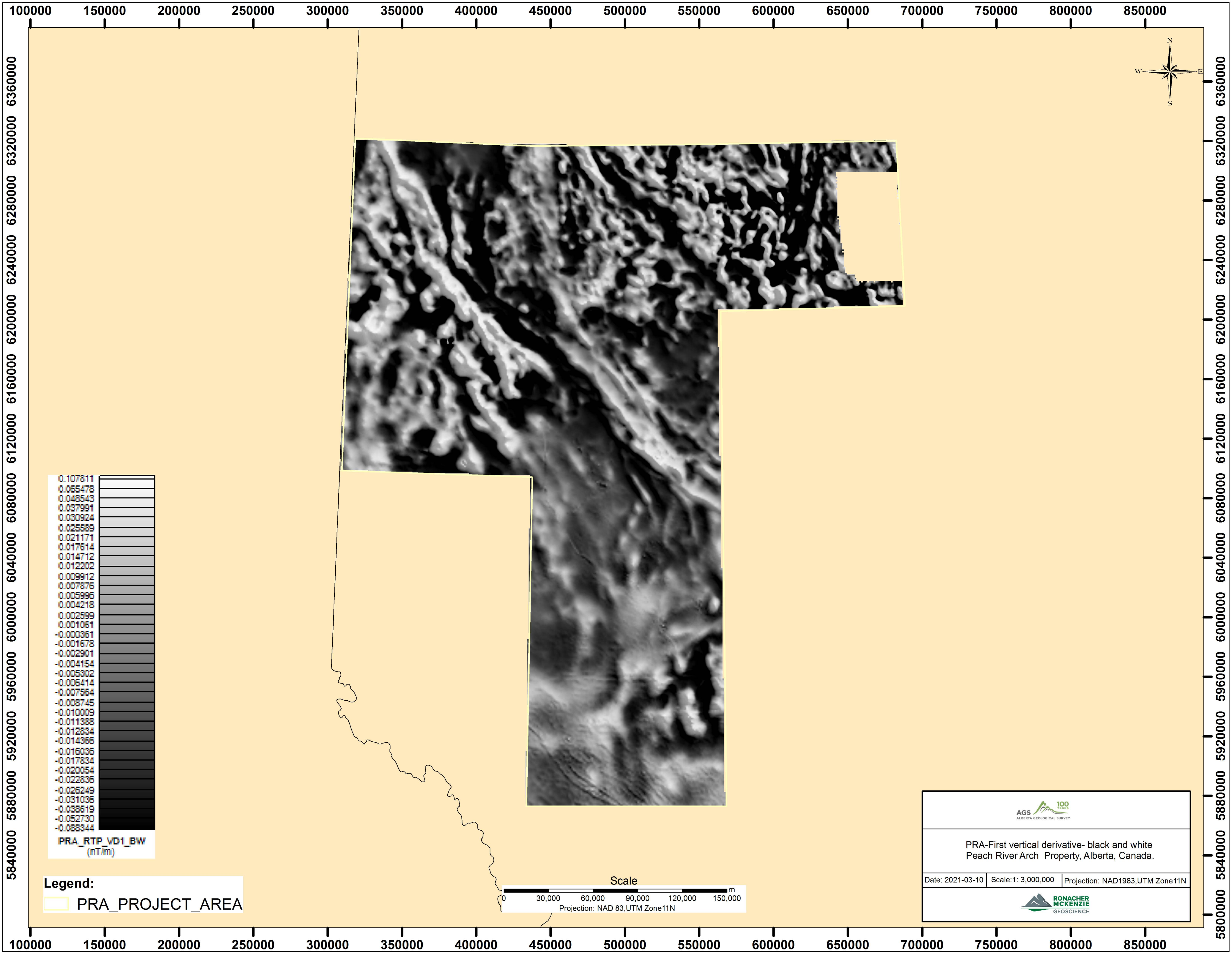
5920000
5880000
5840000
5800000



N
W
E
S
0.000021
0.000012
0.000008
0.000005
0.000003
0.000002
0.000001
0.000000
-0.000000
-0.000001
-0.000001
-0.000002
-0.000003
-0.000004
-0.000005
-0.000007
-0.000010
-0.000015
-0.000027
PRA_RTP_VD2
(nT/m^2)
Legend:
PRA_PROJECT_AREA
Scale
0 30,000 60,000 90,000 120,000 150,000 m
Projection: NAD 83,UTM Zone11N
AGS
ALBERTA GEOLOGICAL SURVEY
100 YEARS
PRA-Second vertical derivative of RTP
Peach River Arch Property, Alberta, Canada.
Date: 2021-03-10
Scale:1: 3,000,000
Projection: NAD1983,UTM Zone11N
RONACHER MCKENZIE GEOSCIENCE



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200000
250000
300000
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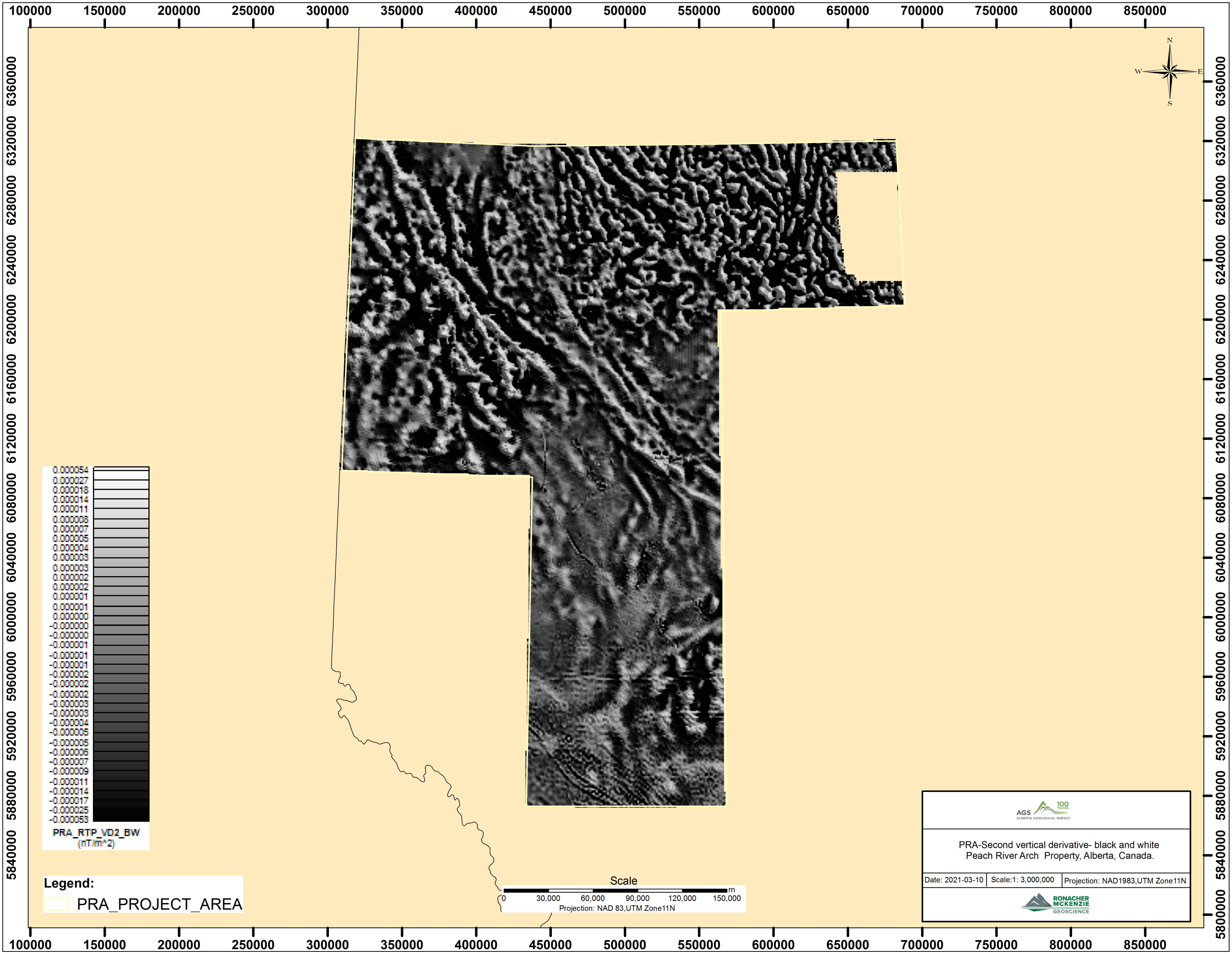
400000
450000
500000
550000
600000
650000
700000
750000
800000
850000
6360000
6320000
6280000
6240000
6200000
6160000
6120000
6080000
6040000
6000000
5960000
5920000
5880000
5840000
5800000
N
S
W
E
0.107811
0.065478
0.048543
0.037991
0.030924
0.025589
0.021171
0.017614
0.014712
0.012202
0.009912
0.007876
0.005996
0.004218
0.002599
0.001061
-0.000361
-0.001678
-0.002901
-0.004154
-0.005302
-0.006414
-0.007564
-0.008745
-0.010009
-0.011388
-0.012834
-0.014366
-0.016036
-0.017834
-0.020054
-0.022836
-0.026249
-0.031036
-0.038619
-0.052730
-0.088344
PRA_RTP_VD1_BW
(nT/m)
Legend:
PRA_PROJECT_AREA
Scale
0
30,000
60,000
90,000
120,000
150,000
m
Projection: NAD 83,UTM Zone11N
AGS
100 YEARS
ALBERTA GEOLOGICAL SURVEY
PRA-First vertical derivative- black and white
Peach River Arch Property, Alberta, Canada.
Date: 2021-03-10
Scale:1: 3,000,000
Projection: NAD1983,UTM Zone11N
RONACHER MCKENZIE GEOSCIENCE



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200000
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800000
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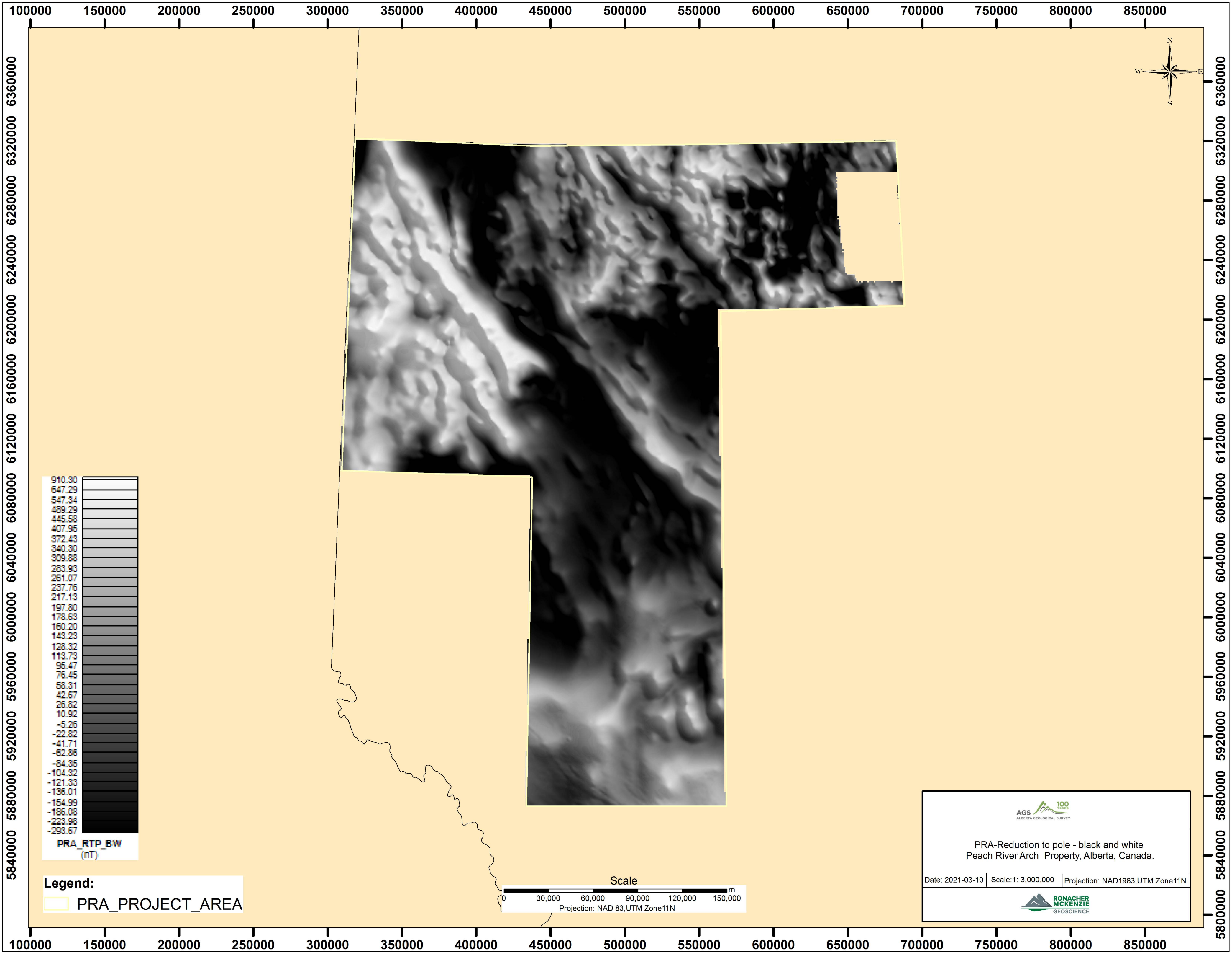
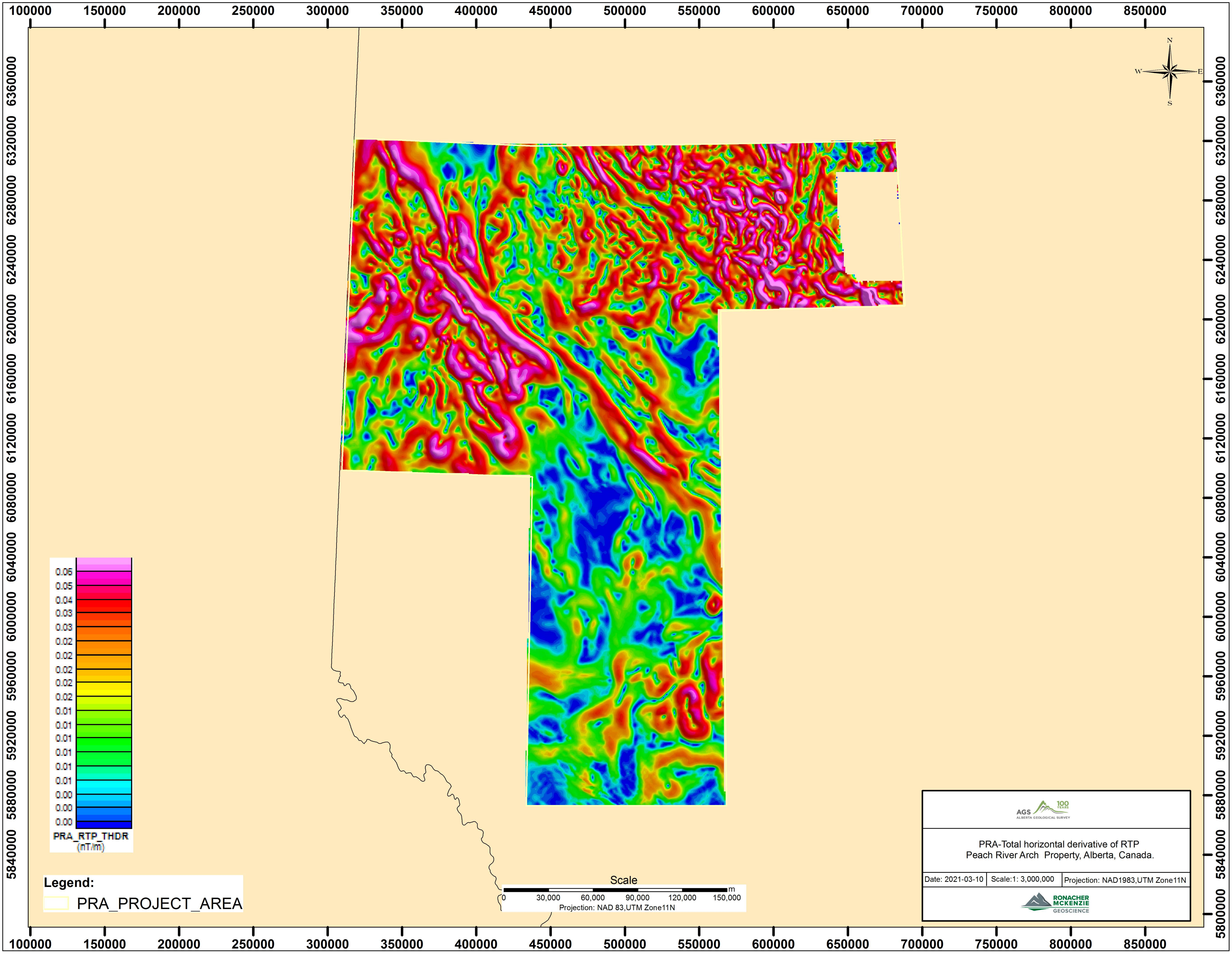
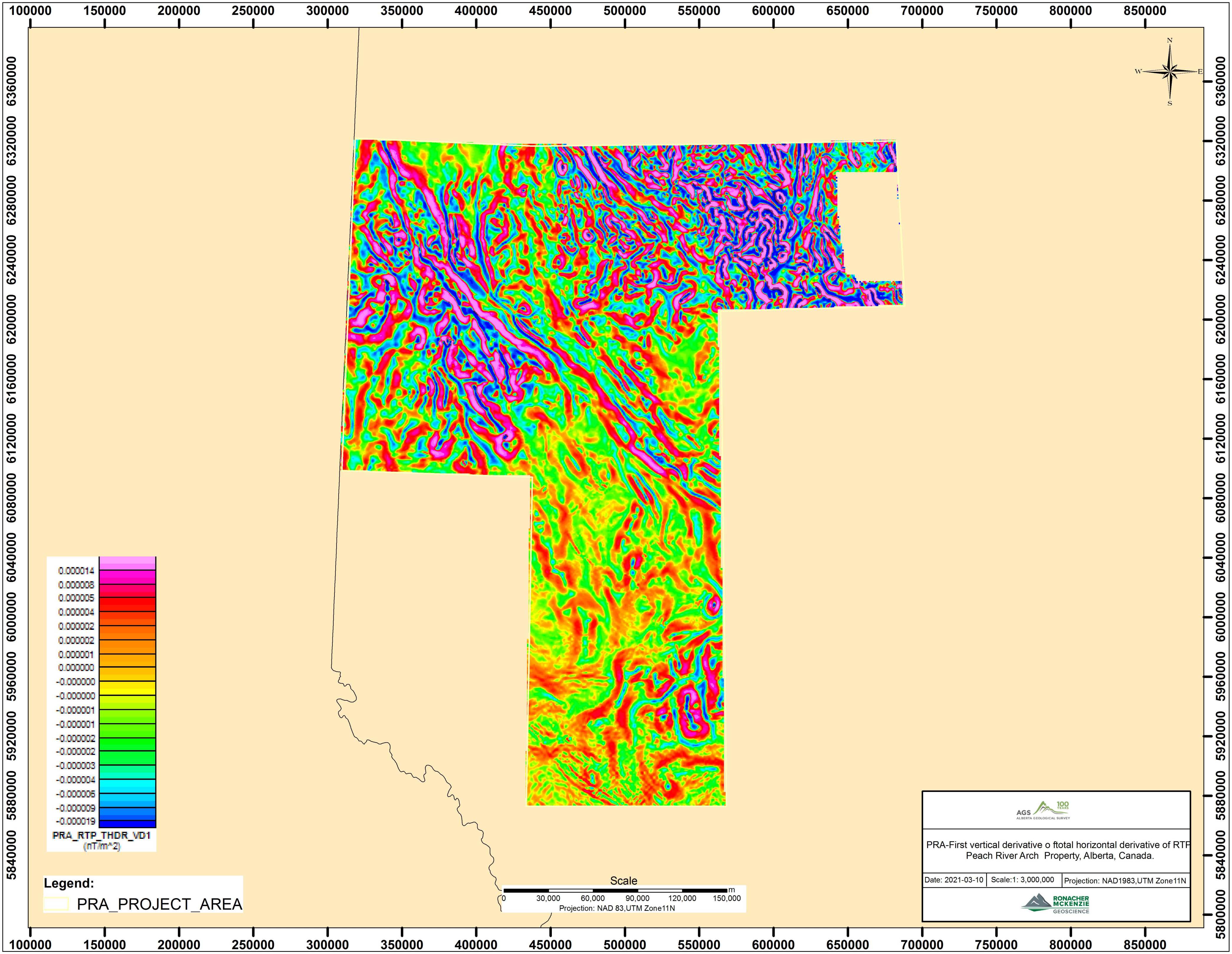
6360000
6320000
6280000
6240000
6200000
6160000
6120000
6080000
6040000
6000000
5960000
5920000
5880000
5840000
5800000
N
W
E
S
0.000054
0.000027
0.000018
0.000014
0.000011
0.000008
0.000007
0.000005
0.000004
0.000003
0.000003
0.000002
0.000002
0.000001
0.000001
0.000000
-0.000000
-0.000000
-0.000001
-0.000001
-0.000001
-0.000002
-0.000002
-0.000002
-0.000003
-0.000003
-0.000004
-0.000005
-0.000005
-0.000006
-0.000007
-0.000009
-0.000011
-0.000014
-0.000017
-0.000025
-0.000053
PRA_RTP_VD2_BW
(nT/m^2)
Legend:
PRA_PROJECT_AREA
Scale
m
0
30,000
60,000
90,000
120,000
150,000
Projection: NAD 83,UTM Zone11N
AGS
ALBERTA GEOLOGICAL SURVEY
100 YEARS
PRA-Second vertical derivative- black and white
Peach River Arch Property, Alberta, Canada.
Date: 2021-03-10
Scale:1: 3,000,000
Projection: NAD1983,UTM Zone11N
RONACHER MCKENZIE GEOSCIENCE



100000
150000
200000
250000
300000
350000
400000
450000
500000
550000
600000
650000
700000
750000
800000
850000
6360000
6320000
6280000
6240000
6200000
6160000
6120000
6080000
6040000
6000000
5960000
5920000
5880000
5840000
5800000
N
E
S
W
910.30
647.29
547.34
489.29
445.58
407.95
372.43
340.30
309.88
283.93
261.07
237.76
217.13
197.80
178.63
160.20
143.23
128.32
113.73
95.47
76.45
58.31
42.67
26.82
10.92
-5.26
-22.82
-41.71
-62.86
-84.35
-104.32
-121.33
-136.01
-154.99
-186.08
-223.98
-293.67
PRA_RTP_BW
(nT)
Legend:
PRA_PROJECT_AREA
Scale
m
0
30,000
60,000
90,000
120,000
150,000
Projection: NAD 83,UTM Zone11N
AGS
100 YEARS
ALBERTA GEOLOGICAL SURVEY
PRA-Reduction to pole - black and white
Peach River Arch Property, Alberta, Canada.
Date: 2021-03-10
Scale:1: 3,000,000
Projection: NAD1983,UTM Zone11N
RONACHER MCKENZIE GEOSCIENCE



PRA_RTP_THDR
(nT/m)
0.06
0.05
0.04
0.03
0.03
0.02
0.02
0.02
0.02
0.02
0.01
0.01
0.01
0.01
0.01
0.01
0.00
0.00
0.00
Legend:
PRA_PROJECT_AREA
Scale
0
30,000
60,000
90,000
120,000
150,000
m
Projection: NAD 83,UTM Zone11N
AGS
ALBERTA GEOLOGICAL SURVEY
100 YEARS
PRA-Total horizontal derivative of RTP
Peach River Arch Property, Alberta, Canada.
Date: 2021-03-10
Scale:1: 3,000,000
Projection: NAD1983,UTM Zone11N
RONACHER MCKENZIE GEOSCIENCE
N
S
E
W



0.000014
0.000008
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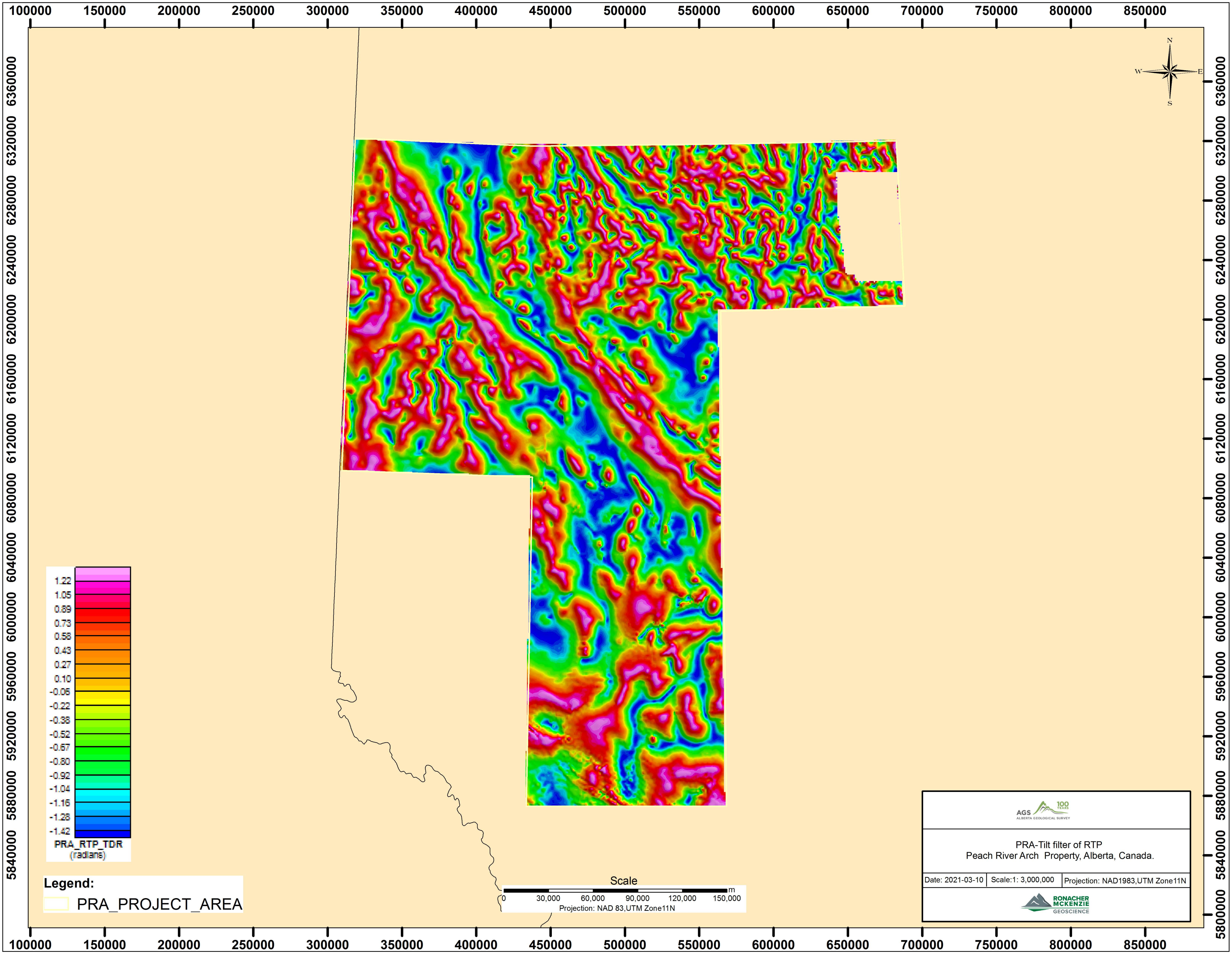
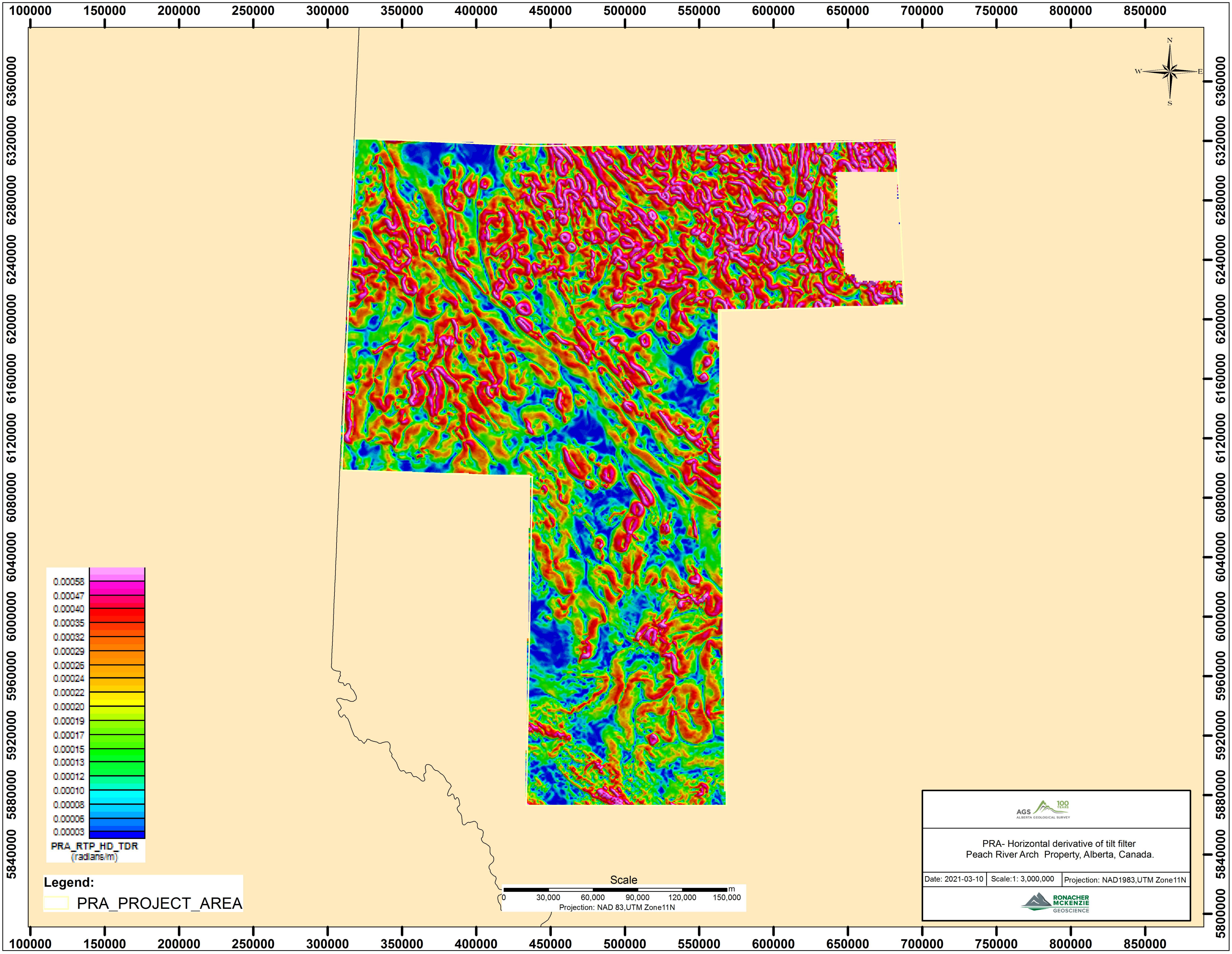
0.000004
0.000002
0.000002
0.000001
0.000000
-0.000000
-0.000000
-0.000001
-0.000001
-0.000002
-0.000002
-0.000003
-0.000004
-0.000006
-0.000009
-0.000019
PRA_RTP_THDR_VD1
(nT/m^2)
Legend:
PRA_PROJECT_AREA
Scale
m
0 30,000 60,000 90,000 120,000 150,000
Projection: NAD 83,UTM Zone11N
N
S
W
E
AGS ALBERTA GEOLOGICAL SURVEY
100 YEARS
PRA-First vertical derivative o ftotal horizontal derivative of RTP
Peach River Arch Property, Alberta, Canada.
Date: 2021-03-10
Scale:1: 3,000,000
Projection: NAD1983,UTM Zone11N
RONACHER MCKENZIE GEOSCIENCE



N
S
W
E
1.22
1.05
0.89
0.73
0.58
0.43
0.27
0.10
-0.06
-0.22
-0.38
-0.52
-0.67
-0.80
-0.92
-1.04
-1.16
-1.28
-1.42
PRA_RTP_TDR
(radians)
Legend:
PRA_PROJECT_AREA
Scale
m
0 30,000 60,000 90,000 120,000 150,000
Projection: NAD 83,UTM Zone11N
AGS ALBERTA GEOLOGICAL SURVEY
100 YEARS
PRA-Tilt filter of RTP
Peach River Arch Property, Alberta, Canada.
Date: 2021-03-10
Scale:1: 3,000,000
Projection: NAD1983,UTM Zone11N
RONACHER MCKENZIE GEOSCIENCE
100000 150000 200000 250000 300000 350000 400000 450000 500000 550000 600000 650000 700000 750000 800000 850000
6360000 6320000 6280000 6240000 6200000 6160000 6120000 6080000 6040000 6000000 5960000 5920000 5880000 5840000 5800000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550000
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650000
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800000
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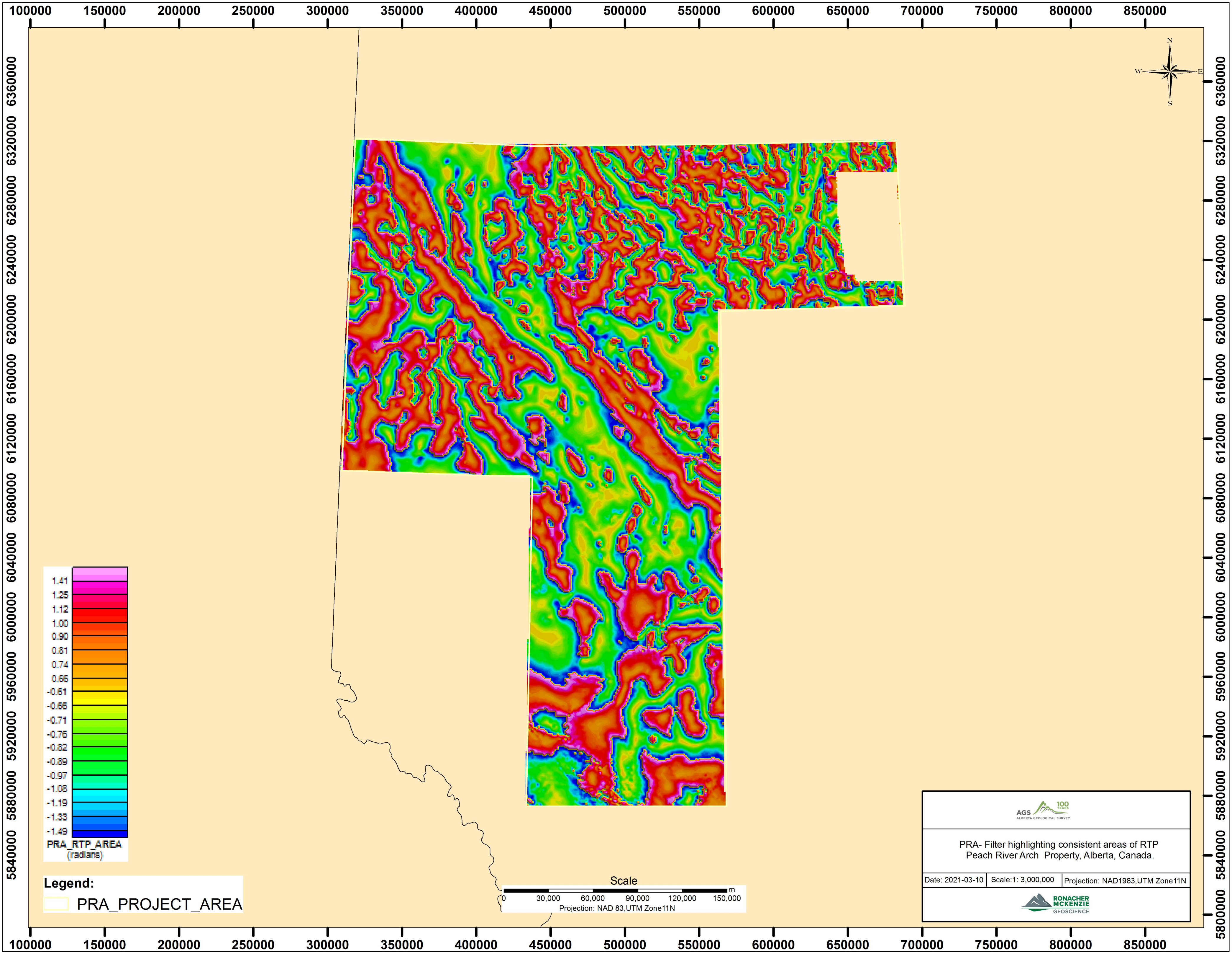
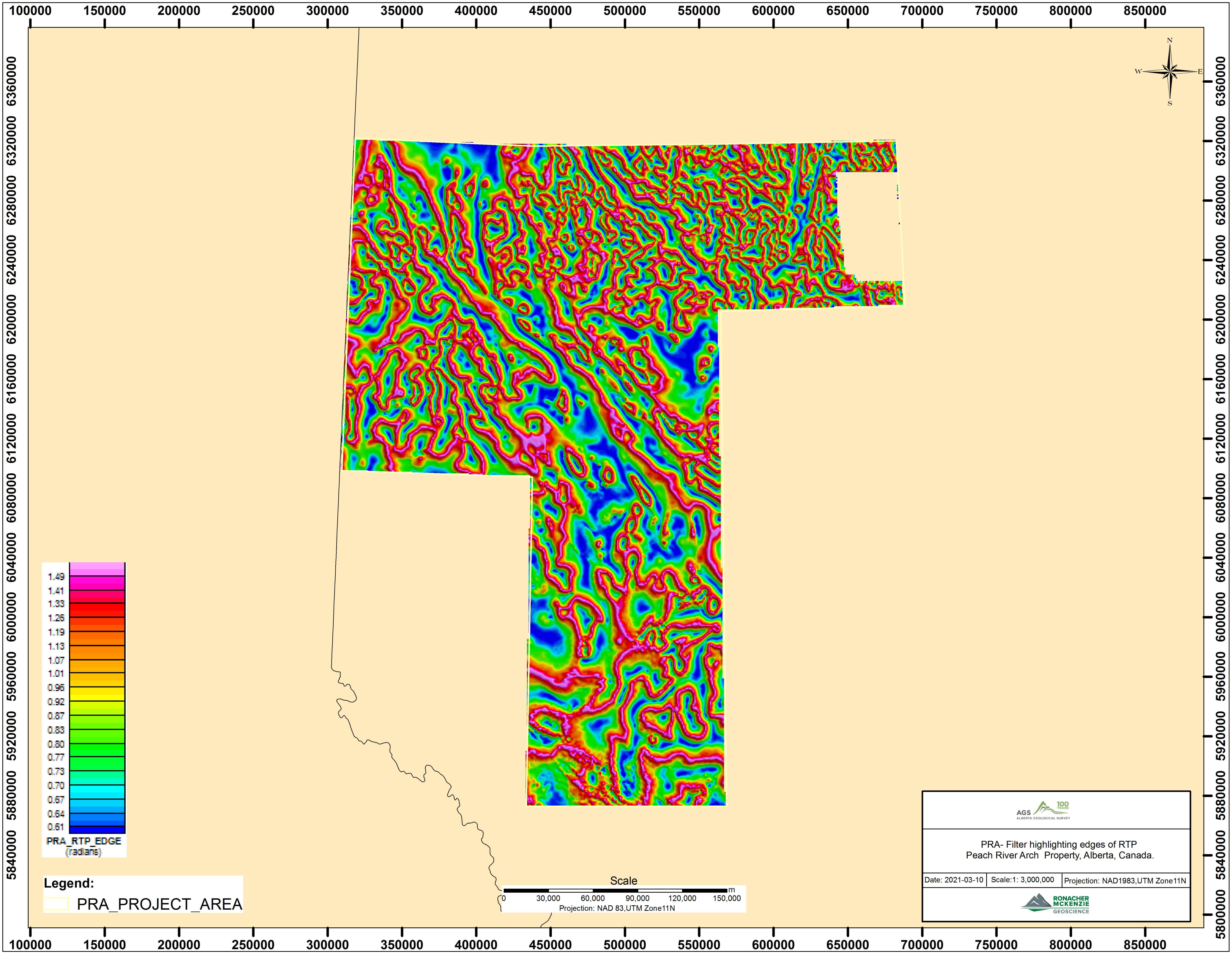
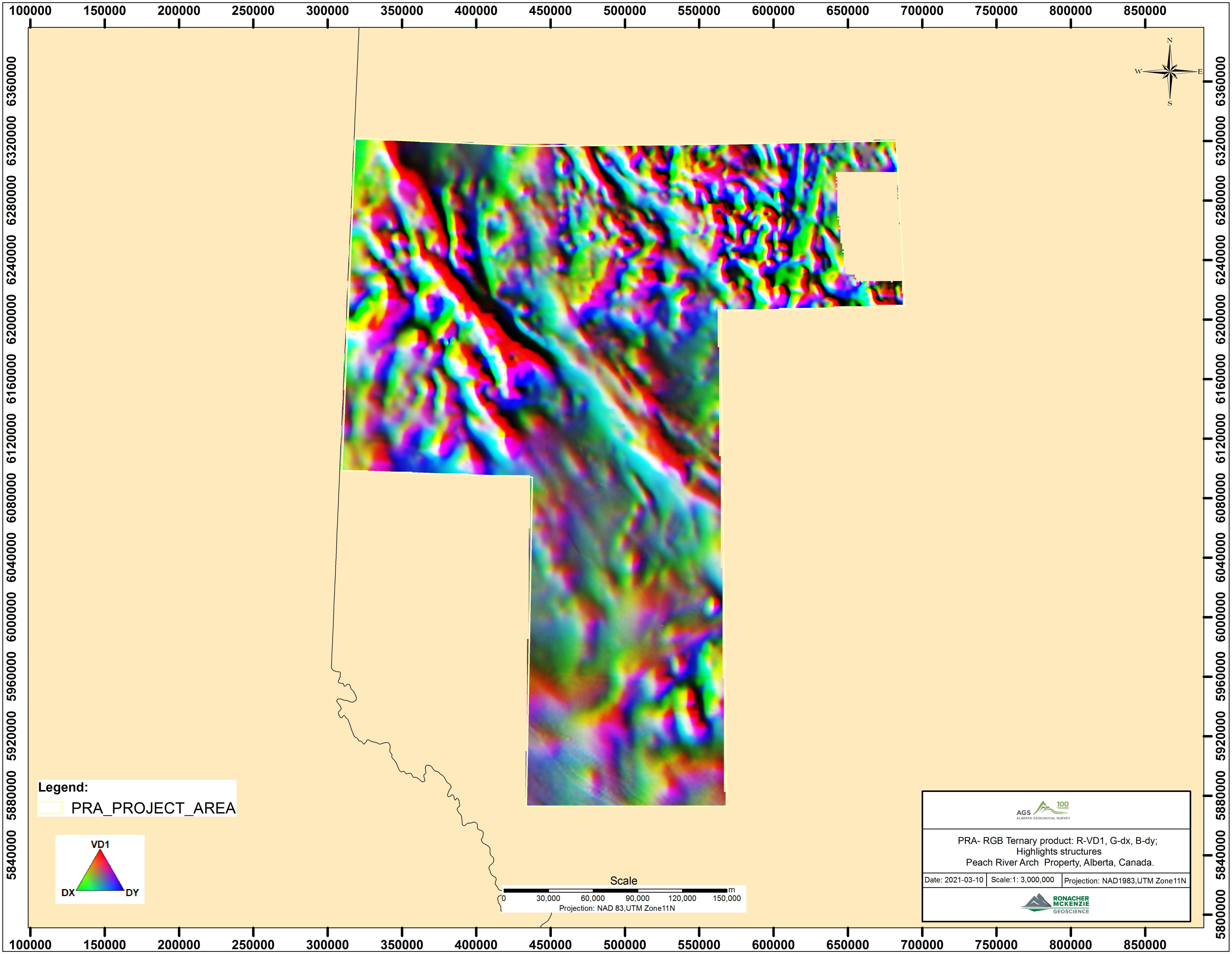
6360000
6320000
6280000
6240000
6200000
6160000
6120000
6080000
6040000
6000000
5960000
5920000
5880000
5840000
5800000
N
S
W
E
0.00058
0.00047
0.00040
0.00035
0.00032
0.00029
0.00026
0.00024
0.00022
0.00020
0.00019
0.00017
0.00015
0.00013
0.00012
0.00010
0.00008
0.00005
0.00003
PRA_RTP_HD_TDR
(radians/m)
Legend:
PRA_PROJECT_AREA
Scale
m
0
30,000
60,000
90,000
120,000
150,000
Projection: NAD 83,UTM Zone11N
AGS
ALBERTA GEOLOGICAL SURVEY
100 YEARS
PRA- Horizontal derivative of tilt filter
Peach River Arch Property, Alberta, Canada.
Date: 2021-03-10
Scale:1: 3,000,000
Projection: NAD1983,UTM Zone11N
RONACHER MCKENZIE
GEOSCIENCE

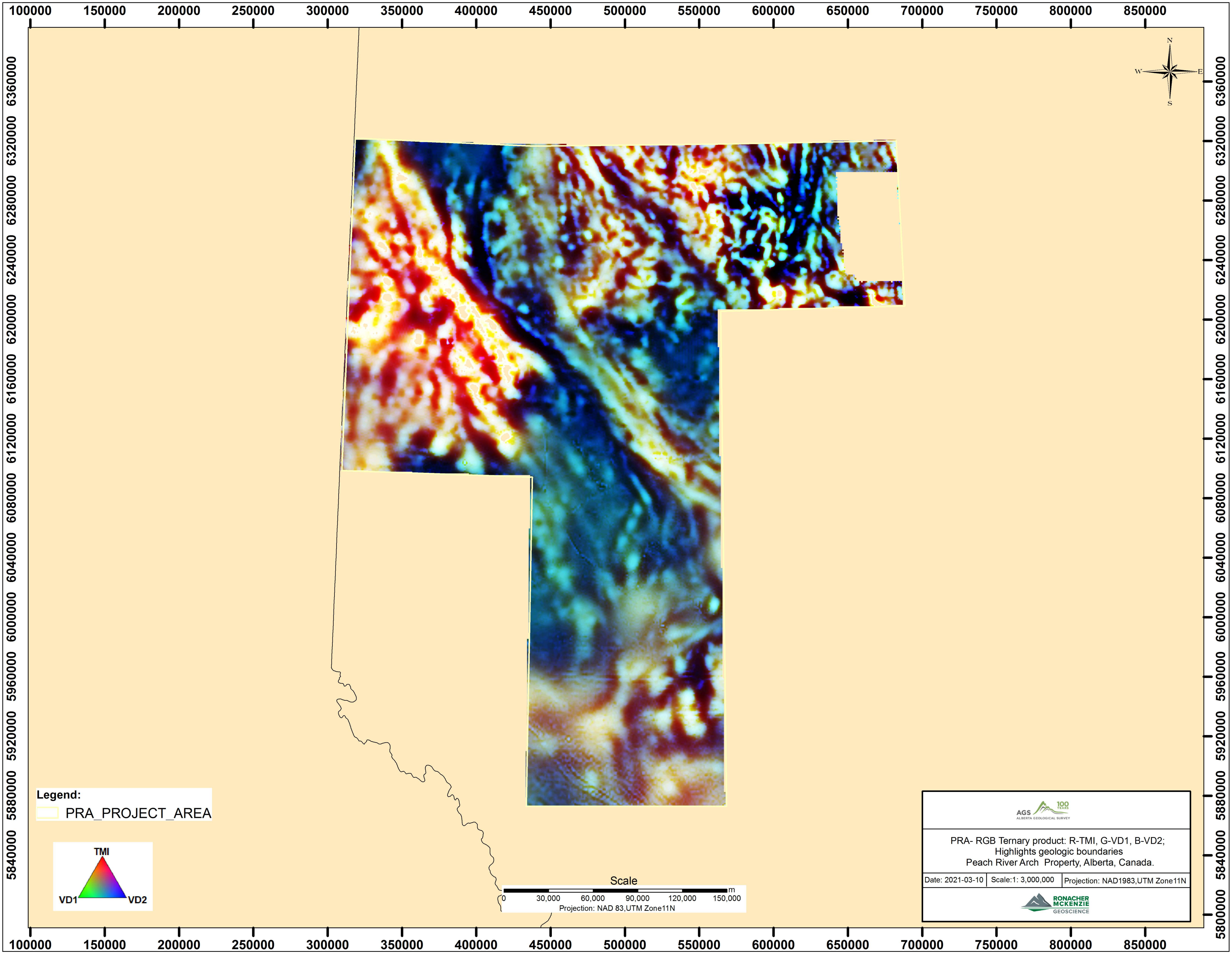


100000
150000
200000
250000
300000
350000
400000
450000
500000
550000
600000
650000
700000
750000
800000
850000
6360000
6320000
6280000
6240000
6200000
6160000
6120000
6080000
6040000
6000000
5960000
5920000
5880000
5840000
5800000
N
W
E
S
1.41
1.25
1.12
1.00
0.90
0.81
0.74
0.66
-0.61
-0.66
-0.71
-0.76
-0.82
-0.89
-0.97
-1.08
-1.19
-1.33
-1.49
PRA_RTP_AREA
(radians)
Legend:
PRA_PROJECT_AREA
Scale
0
30,000
60,000
90,000
120,000
150,000
m
Projection: NAD 83,UTM Zone11N
AGS ALBERTA GEOLOGICAL SURVEY 100 YEARS
PRA- Filter highlighting consistent areas of RTP
Peach River Arch Property, Alberta, Canada.
Date: 2021-03-10
Scale:1: 3,000,000
Projection: NAD1983,UTM Zone11N
RONACHER MCKENZIE GEOSCIENCE

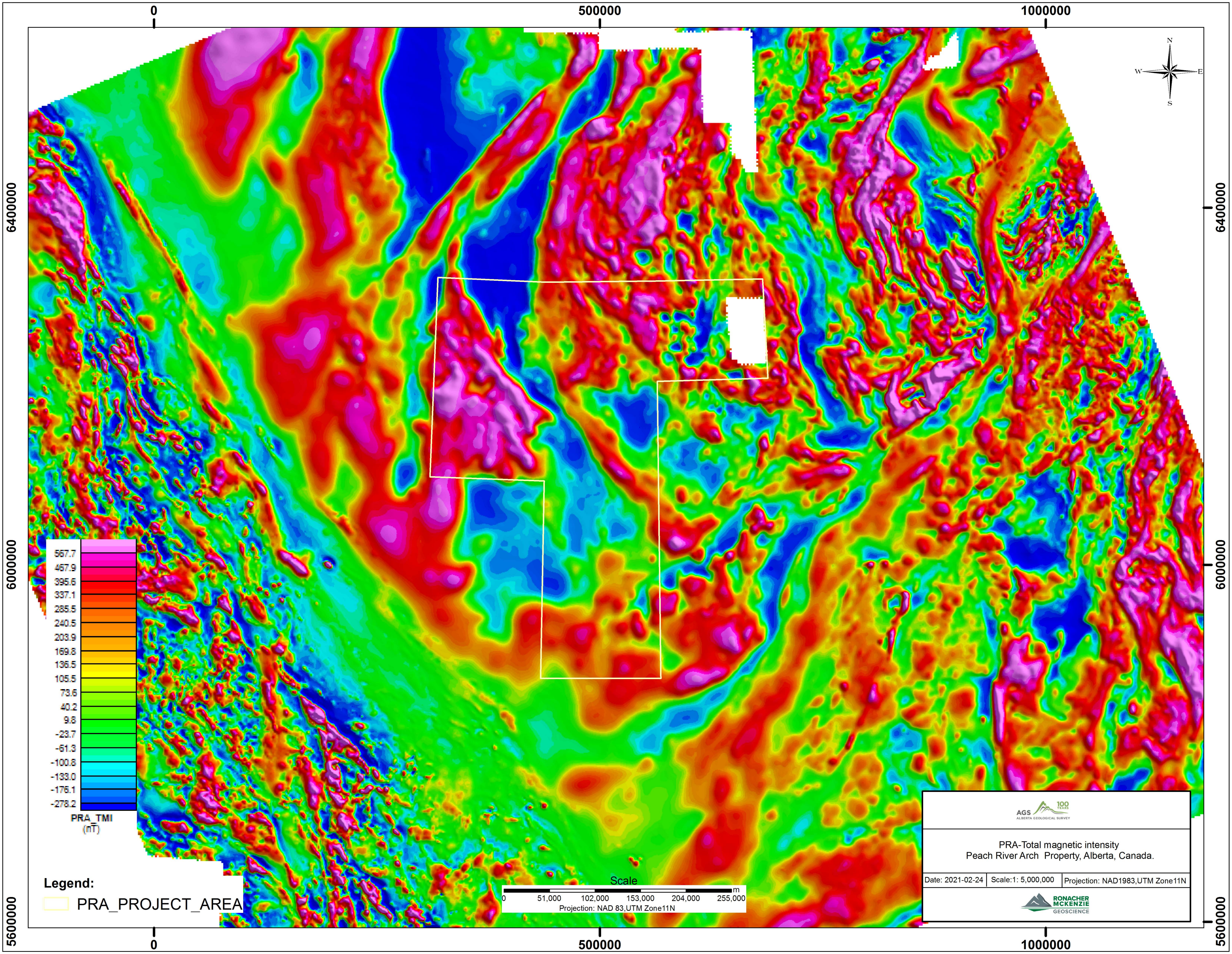

100000 150000 200000 250000 300000 350000 400000 450000 500000 550000 600000 650000 700000 750000 800000 850000
6360000 6320000 6280000 6240000 6200000 6160000 6120000 6080000 6040000 6000000 5960000 5920000 5880000 5840000 5800000
N
W
E
S
1.49
1.41
1.33
1.26
1.19
1.13
1.07
1.01
0.96
0.92
0.87
0.83
0.80
0.77
0.73
0.70
0.67
0.64
0.61
PRA_RTP_EDGE
(radians)
Legend:
PRA_PROJECT_AREA
Scale
0 30,000 60,000 90,000 120,000 150,000 m
Projection: NAD 83,UTM Zone11N
AGS
PRA- Filter highlighting edges of RTP
Peach River Arch Property, Alberta, Canada.
Date: 2021-03-10
Scale:1: 3,000,000
Projection: NAD1983,UTM Zone11N
RONACHER MCKENZIE GEOSCIENCE



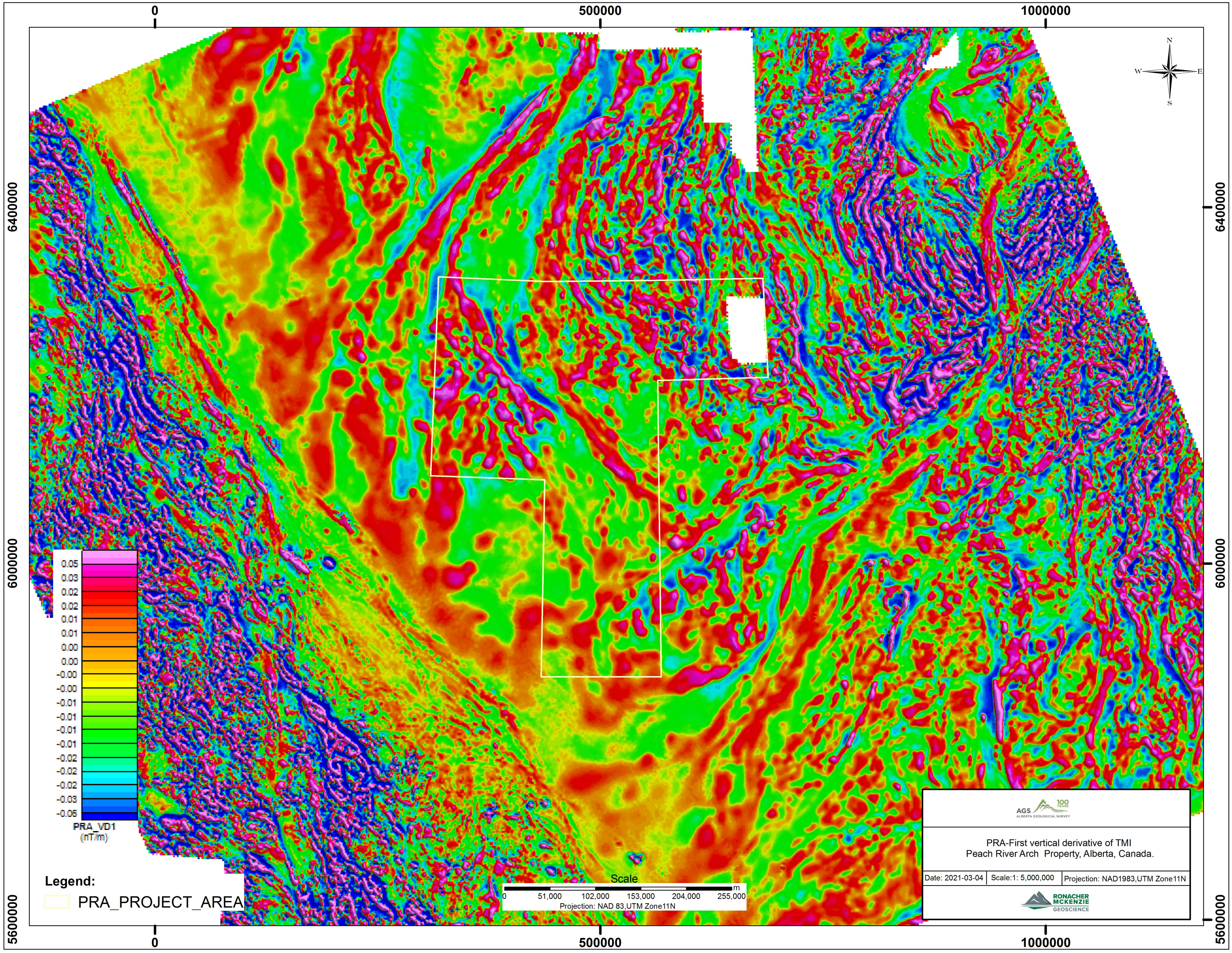
Legend:
PRA_PROJECT_AREA
VD1
DX
DY
Scale
0 30,000 60,000 90,000 120,000 150,000 m
Projection: NAD 83,UTM Zone11N
PRA- RGB Ternary product: R-VD1, G-dx, B-dy;
Highlights structures
Peach River Arch Property, Alberta, Canada.
Date: 2021-03-10
Scale:1: 3,000,000
Projection: NAD1983,UTM Zone11N
RONACHER MCKENZIE GEOSCIENCE

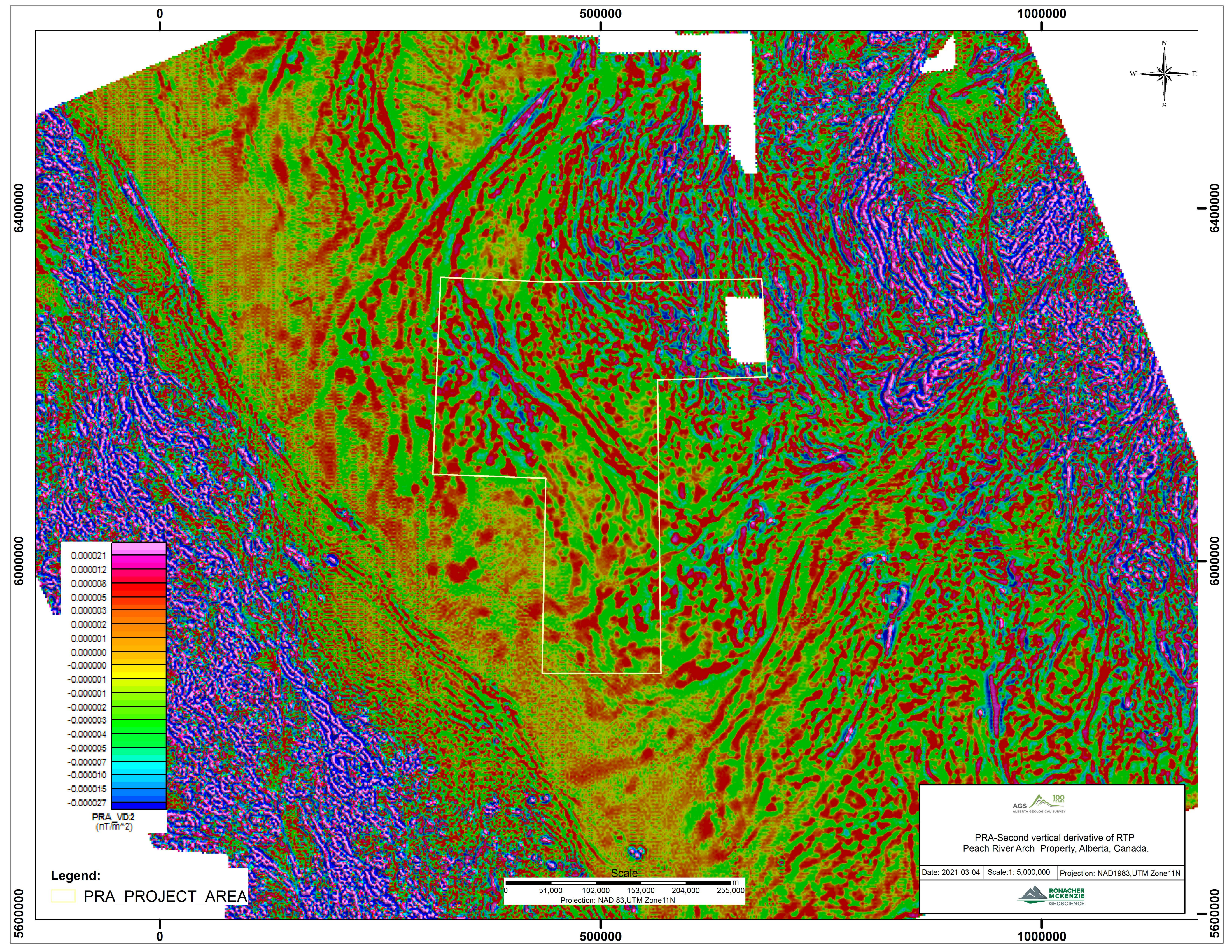


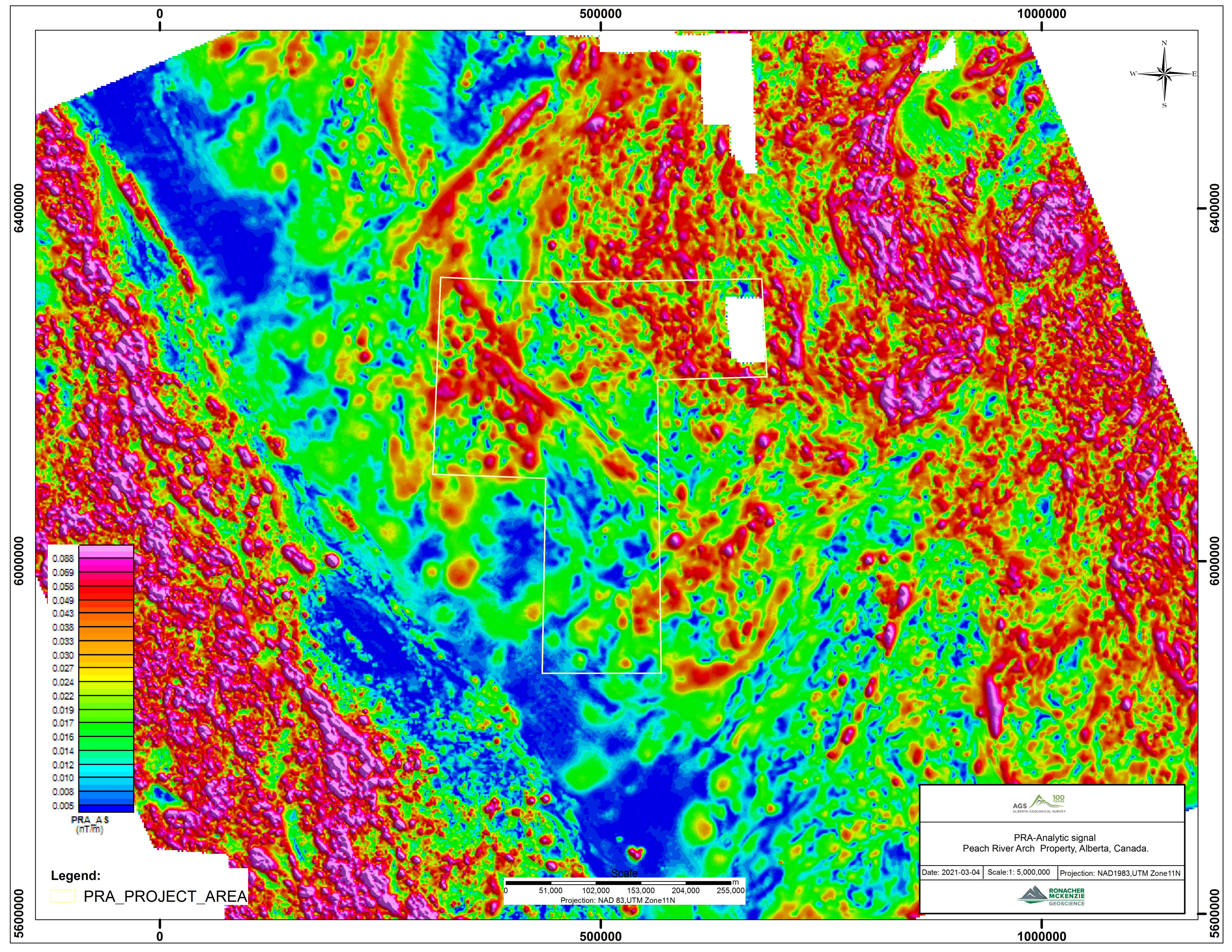
Legend:
PRA_PROJECT_AREA
TMI
VD1
VD2
Scale
0 30,000 60,000 90,000 120,000 150,000 m
Projection: NAD 83,UTM Zone11N
AGS ALBERTA GEOLOGICAL SURVEY 100 YEARS
PRA- RGB Ternary product: R-TMI, G-VD1, B-VD2;
Highlights geologic boundaries
Peach River Arch Property, Alberta, Canada.
Date: 2021-03-10
Scale:1: 3,000,000
Projection: NAD1983,UTM Zone11N
RONACHER MCKENZIE GEOSCIENCE
N
S
E
W
100000 150000 200000 250000 300000 350000 400000 450000 500000 550000 600000 650000 700000 750000 800000 850000
6360000 6320000 6280000 6240000 6200000 6160000 6120000 6080000 6040000 6000000 5960000 5920000 5880000 5840000 5800000



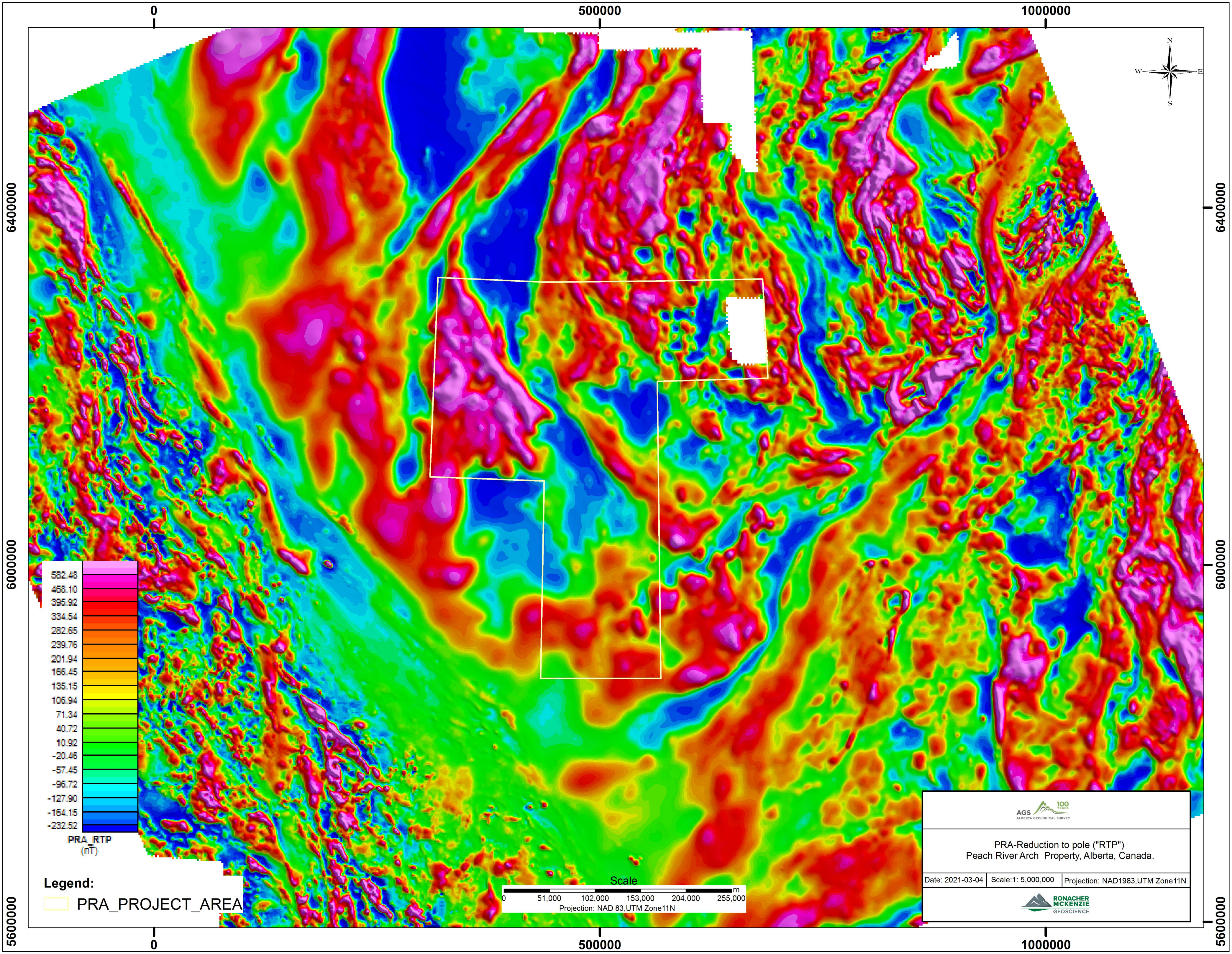
0
500000
1000000
6400000
6000000
5600000
N
W
E
S
567.7
457.9
395.6
337.1
285.5
240.5
203.9
169.8
136.5
105.5
73.6
40.2
9.8
-23.7
-61.3
-100.8
-133.0
-176.1
-278.2
PRA_TMI
(nT)
Legend:
PRA_PROJECT_AREA
Scale
0 51,000 102,000 153,000 204,000 255,000 m
Projection: NAD 83,UTM Zone11N
AGS
ALBERTA GEOLOGICAL SURVEY
100 YEARS
PRA-Total magnetic intensity
Peach River Arch Property, Alberta, Canada.
Date: 2021-02-24
Scale:1: 5,000,000
Projection: NAD1983,UTM Zone11N
RONACHER MCKENZIE GEOSCIENCE


0
500000
1000000
6400000
6000000
5600000
N
S
W
E
0.05
0.03
0.02
0.02
0.01
0.01
0.00
0.00
-0.00
-0.00
-0.01
-0.01
-0.01
-0.01
-0.02
-0.02
-0.02
-0.03
-0.06
PRA_VD1
(nT/m)
Legend:
PRA_PROJECT_AREA
Scale
0
51,000
102,000
153,000
204,000
255,000
m
Projection: NAD 83,UTM Zone11N
AGS
ALBERTA GEOLOGICAL SURVEY
PRA-First vertical derivative of TMI
Peach River Arch Property, Alberta, Canada.
Date: 2021-03-04
Scale:1: 5,000,000
Projection: NAD1983,UTM Zone11N
RONACHER MCKENZIE GEOSCIENCE

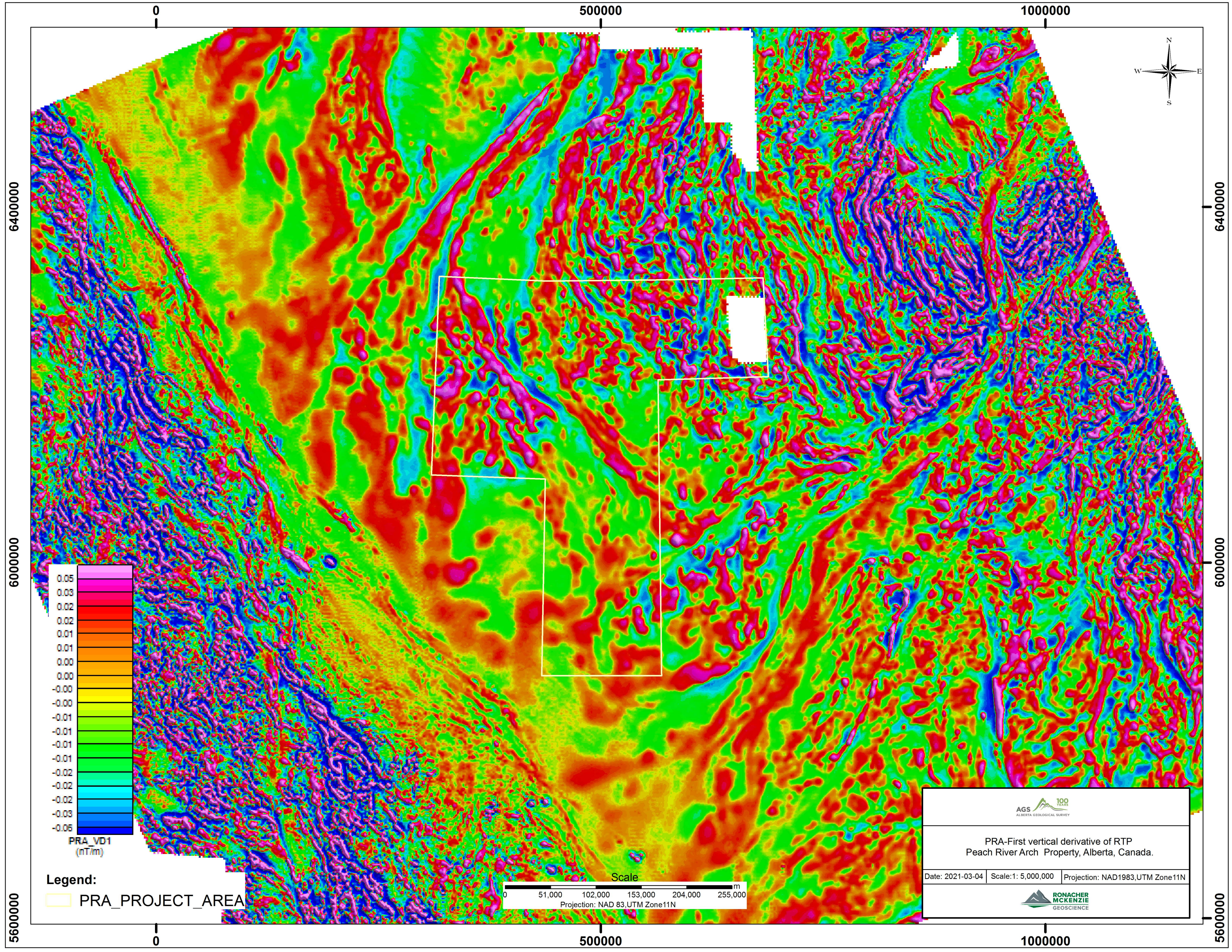

0
500000
1000000
6400000
6000000
5600000
N
S
W
E
0.000021
0.000012
0.000008
0.000005
0.000003
0.000002
0.000001
0.000000
-0.000000
-0.000001
-0.000001
-0.000002
-0.000003
-0.000004
-0.000005
-0.000007
-0.000010
-0.000015
-0.000027
PRA_VD2
(nT/m^2)
Legend:
PRA_PROJECT_AREA
Scale
m
0
51,000
102,000
153,000
204,000
255,000
Projection: NAD 83,UTM Zone11N
AGS
100 YEARS
ALBERTA GEOLOGICAL SURVEY
PRA-Second vertical derivative of RTP
Peach River Arch Property, Alberta, Canada.
Date: 2021-03-04
Scale:1: 5,000,000
Projection: NAD1983,UTM Zone11N
RONACHER MCKENZIE GEOSCIENCE

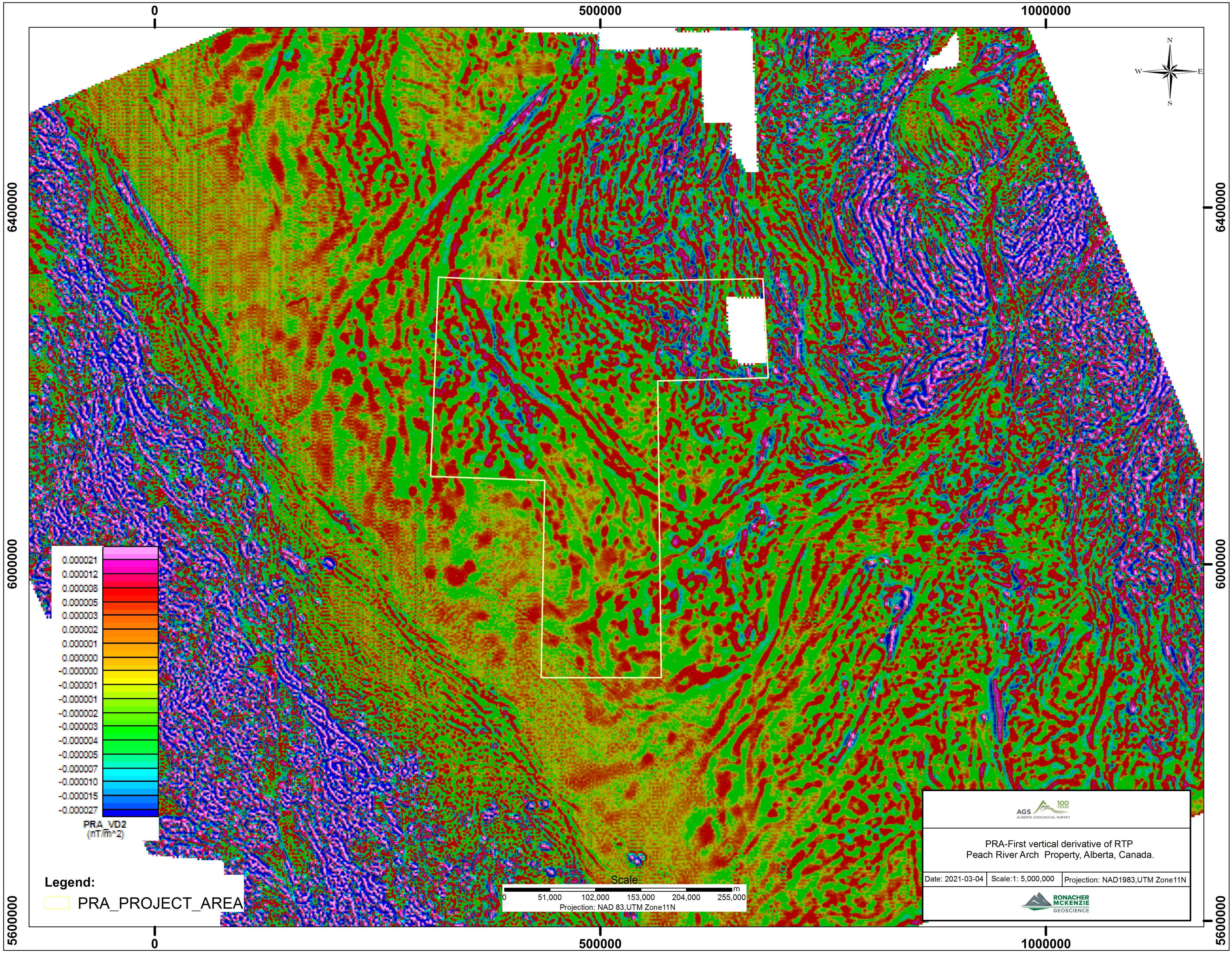


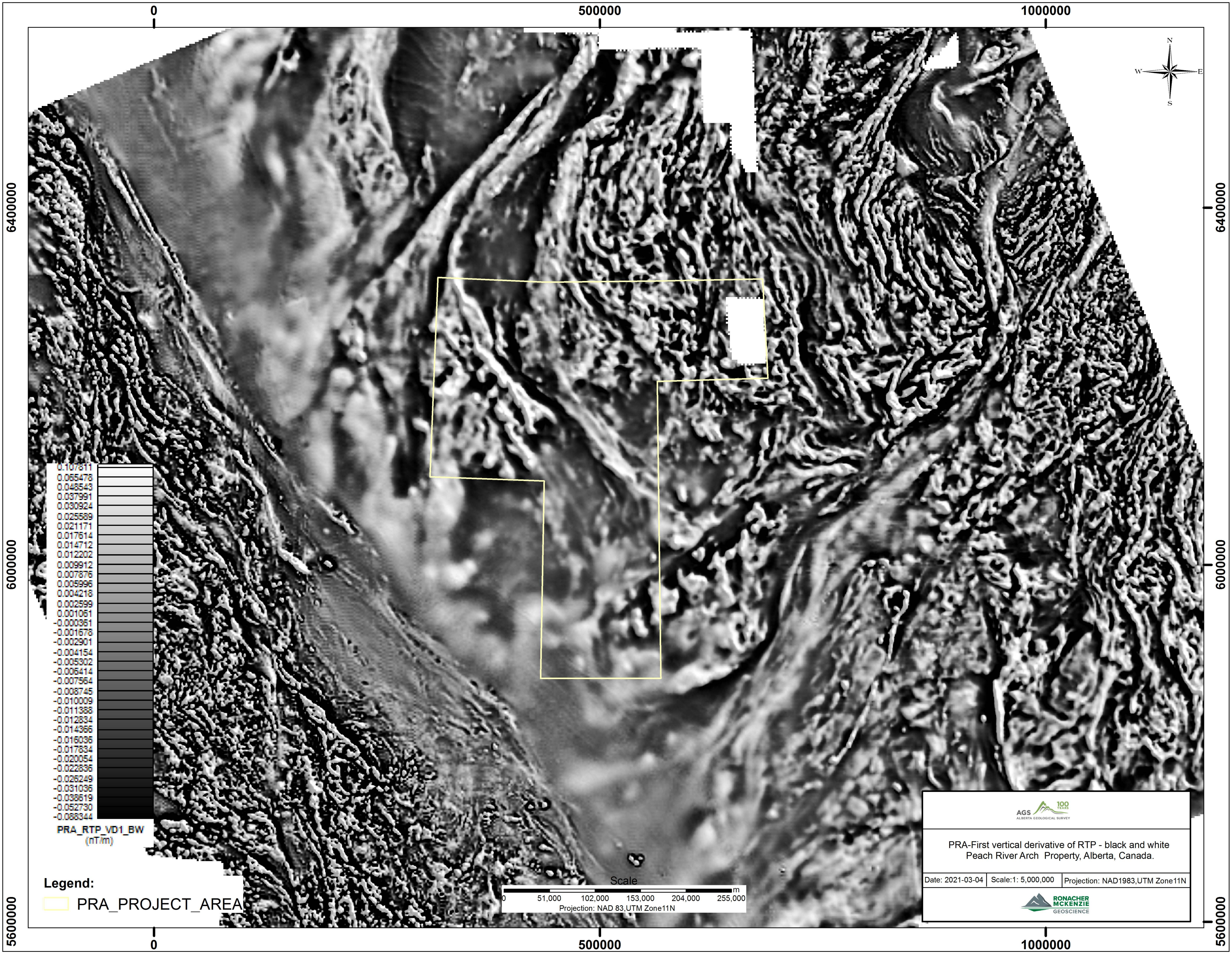
0
500000
1000000
6400000
6000000
5600000
N
S
W
E
0.088
0.069
0.058
0.049
0.043
0.038
0.033
0.030
0.027
0.024
0.022
0.019
0.017
0.015
0.014
0.012
0.010
0.008
0.005
PRA_AS
(nT/m)
Legend:
PRA_PROJECT_AREA
Scale
m
0 51,000 102,000 153,000 204,000 255,000
Projection: NAD 83,UTM Zone11N
AGS
ALBERTA GEOLOGICAL SURVEY
PRA-Analytic signal
Peach River Arch Property, Alberta, Canada.
Date: 2021-03-04
Scale:1: 5,000,000
Projection: NAD1983,UTM Zone11N
RONACHER MCKENZIE GEOSCIENCE



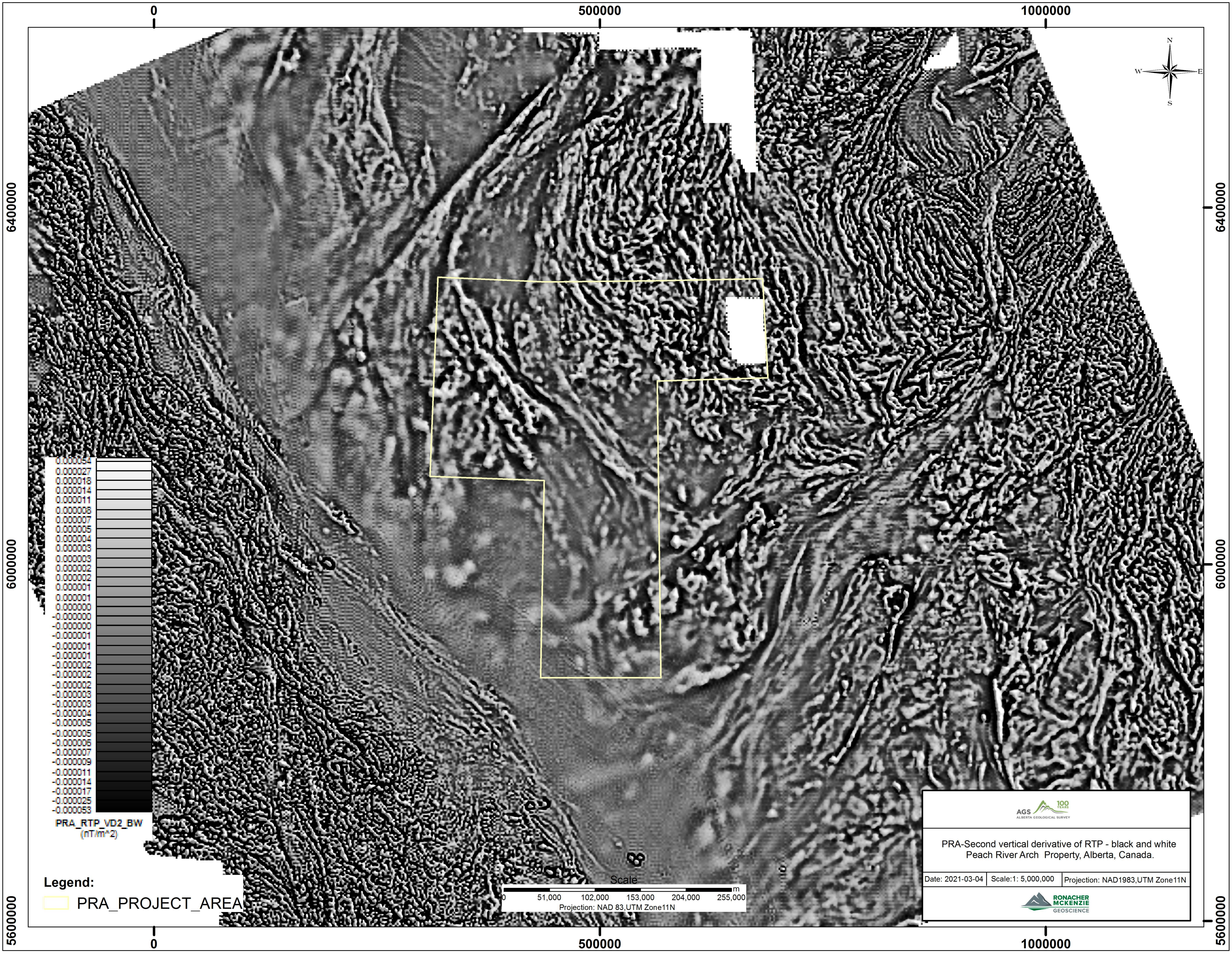
0
500000
1000000
6400000
6000000
5600000
582.48
458.10
395.92
334.54
282.65
239.76
201.94
166.45
135.15
106.94
71.34
40.72
10.92
-20.46
-57.45
-96.72
-127.90
-164.15
-232.52
PRA_RTP
(nT)
Legend:
PRA_PROJECT_AREA
Scale
0 51,000 102,000 153,000 204,000 255,000 m
Projection: NAD 83,UTM Zone11N
AGS ALBERTA GEOLOGICAL SURVEY
100 YEARS
PRA-Reduction to pole ("RTP")
Peach River Arch Property, Alberta, Canada.
Date: 2021-03-04
Scale:1: 5,000,000
Projection: NAD1983,UTM Zone11N
RONACHER MCKENZIE GEOSCIENCE
N
S
E
W

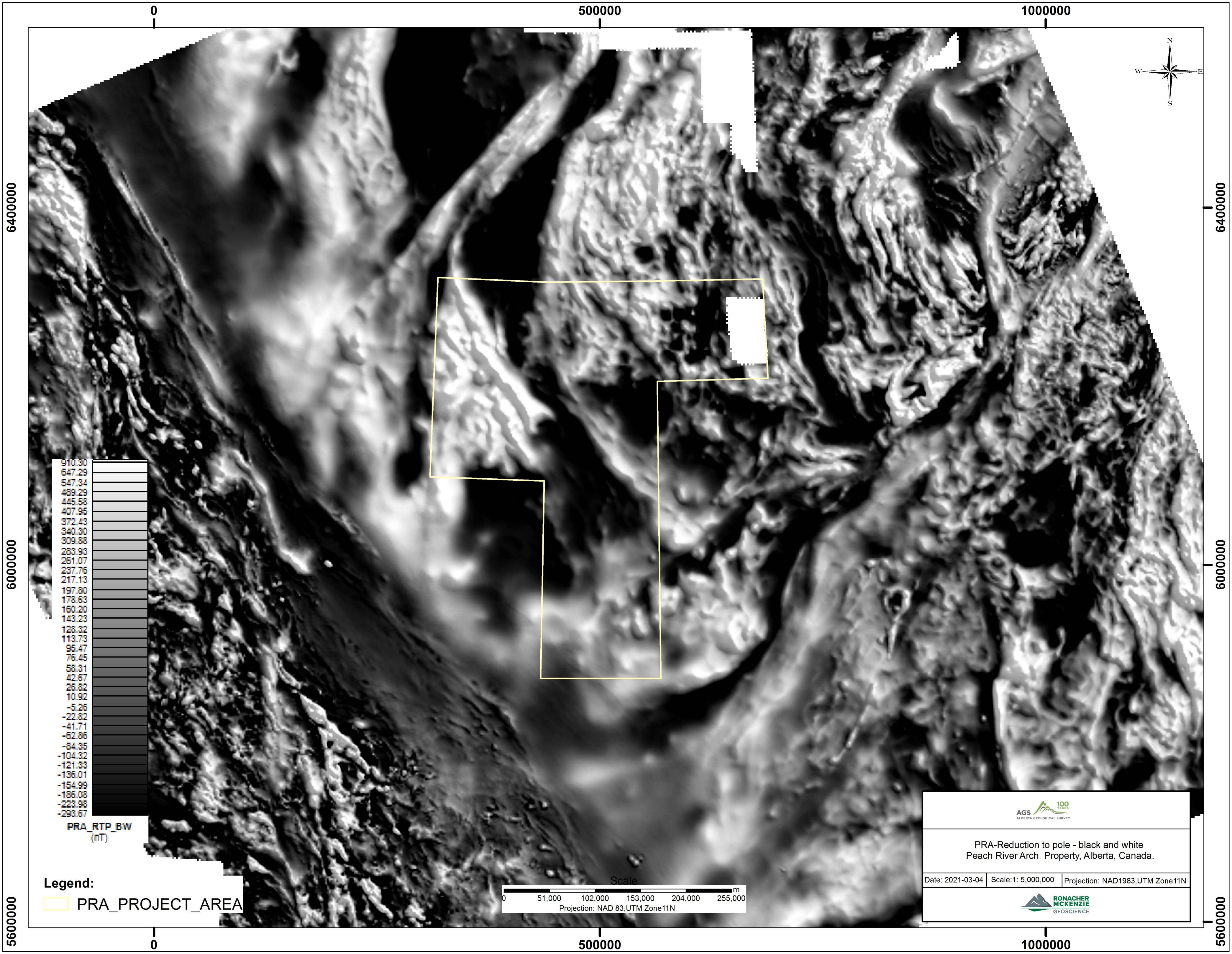

0
500000
1000000
6400000
6000000
5600000
N
S
W
E
0.05
0.03
0.02
0.02
0.01
0.01
0.00
0.00
-0.00
-0.00
-0.01
-0.01
-0.01
-0.01
-0.02
-0.02
-0.02
-0.03
-0.05
PRA_VD1
(nT/m)
Legend:
PRA_PROJECT_AREA
Scale
m
0
51,000
102,000
153,000
204,000
255,000
Projection: NAD 83,UTM Zone11N
AGS
100 YEARS
ALBERTA GEOLOGICAL SURVEY
PRA-First vertical derivative of RTP
Peach River Arch Property, Alberta, Canada.
Date: 2021-03-04
Scale:1: 5,000,000
Projection: NAD1983,UTM Zone11N
RONACHER MCKENZIE GEOSCIENCE


0
500000
1000000
6400000
6000000
5600000
N
S
W
E
0.000021
0.000012
0.000008
0.000005
0.000003
0.000002
0.000001
0.000000
-0.000000
-0.000001
-0.000001
-0.000002
-0.000003
-0.000004
-0.000005
-0.000007
-0.000010
-0.000015
-0.000027
PRA_VD2
(nT/m^2)
Legend:
PRA_PROJECT_AREA
Scale
m
0 51,000 102,000 153,000 204,000 255,000
Projection: NAD 83,UTM Zone11N
AGS
100 YEARS
ALBERTA GEOLOGICAL SURVEY
PRA-First vertical derivative of RTP
Peach River Arch Property, Alberta, Canada.
Date: 2021-03-04
Scale:1: 5,000,000
Projection: NAD1983,UTM Zone11N
RONACHER MCKENZIE GEOSCIENCE

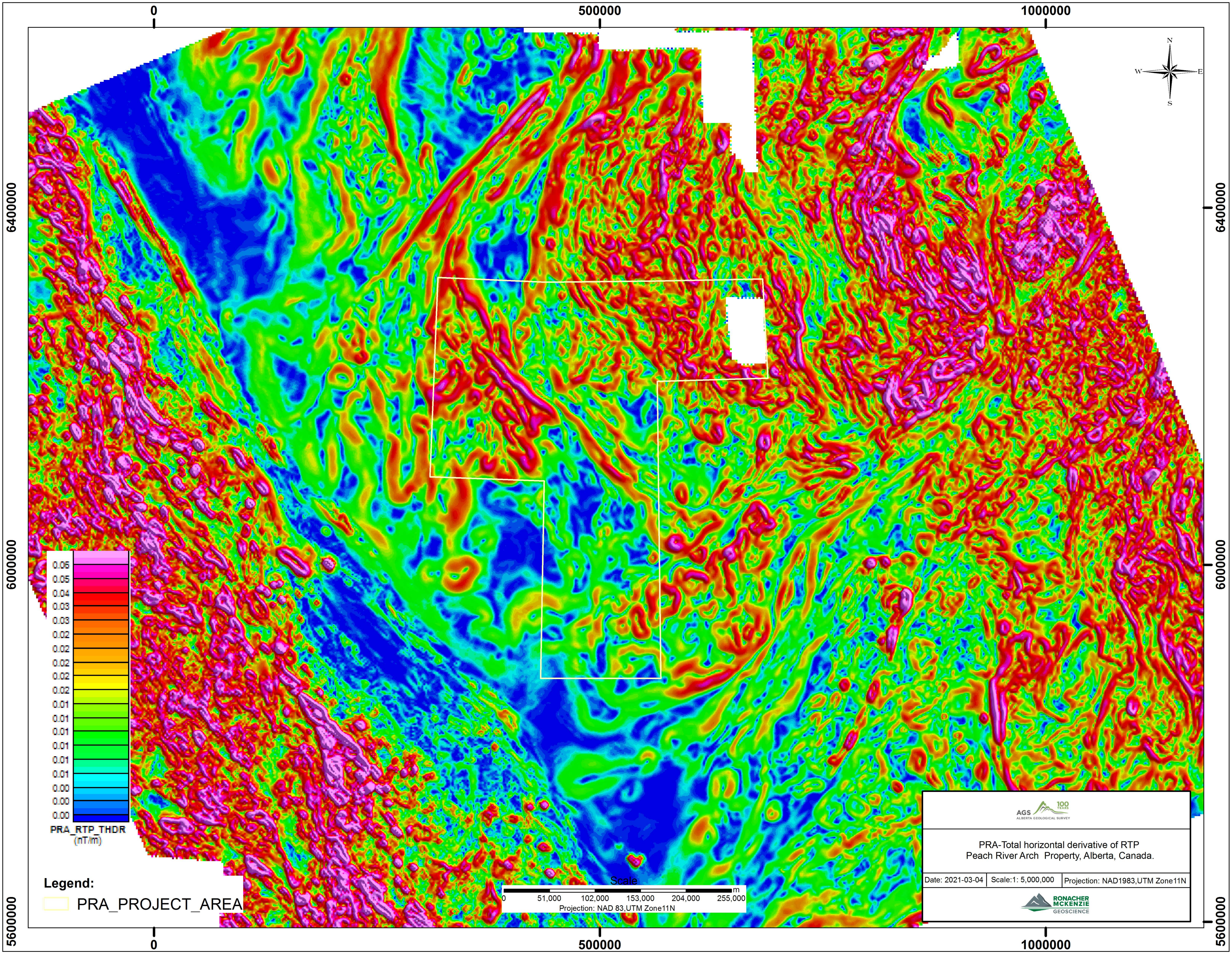


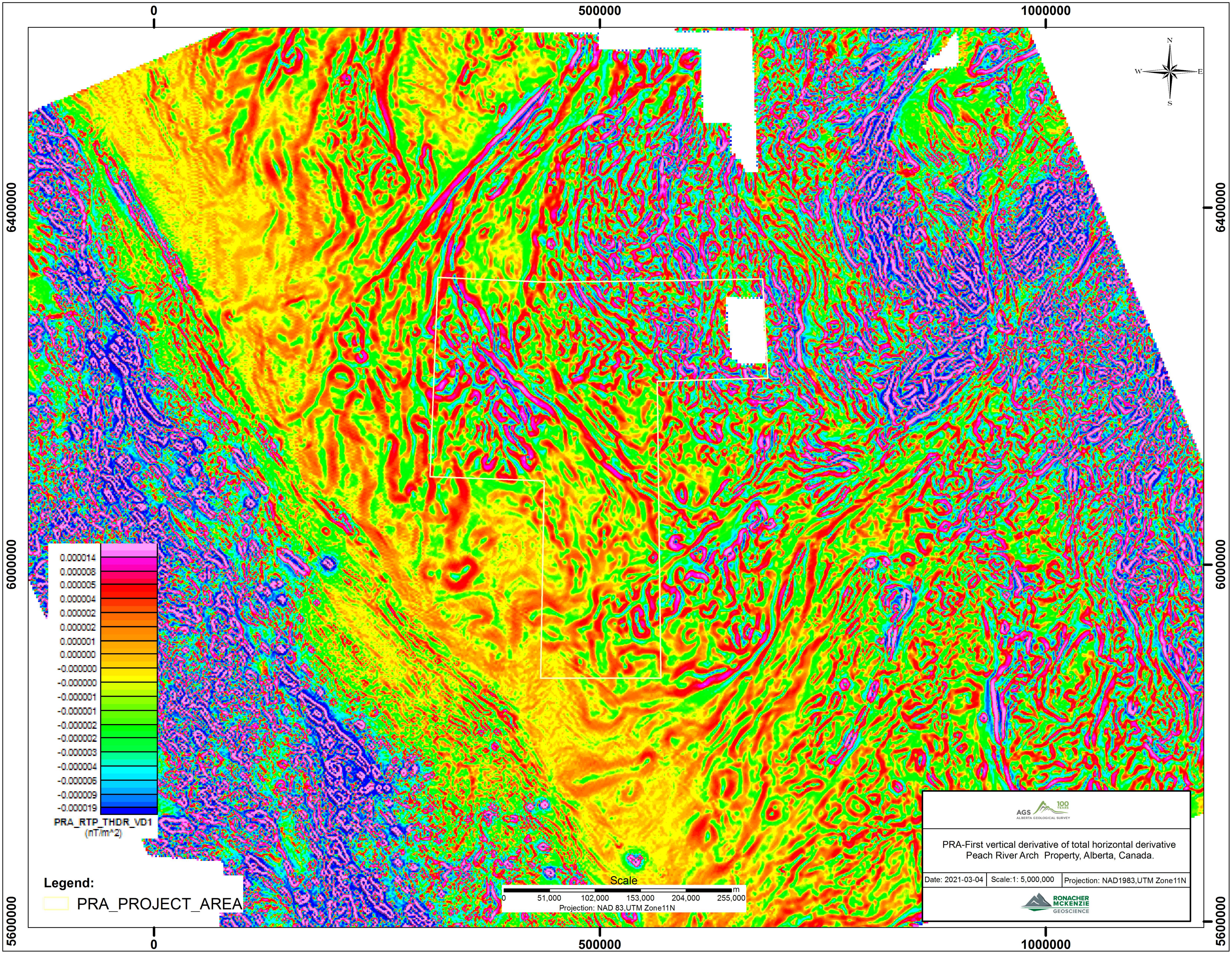
0
500000
1000000
6400000
6000000
5600000
N
S
W
E
0.107811
0.065478
0.048543
0.037991
0.030924
0.025589
0.021171
0.017614
0.014712
0.012202
0.009912
0.007876
0.005996
0.004218
0.002599
0.001061
-0.000361
-0.001678
-0.002901
-0.004154
-0.005302
-0.006414
-0.007564
-0.008745
-0.010009
-0.011388
-0.012834
-0.014366
-0.016036
-0.017834
-0.020054
-0.022836
-0.026249
-0.031036
-0.038619
-0.052730
-0.088344
PRA_RTP_VD1_BW
(nT/m)
Legend:
PRA_PROJECT_AREA
Scale
m
0 51,000 102,000 153,000 204,000 255,000
Projection: NAD 83,UTM Zone11N
AGS
ALBERTA GEOLOGICAL SURVEY
100 YEARS
PRA-First vertical derivative of RTP - black and white
Peach River Arch Property, Alberta, Canada.
Date: 2021-03-04
Scale:1: 5,000,000
Projection: NAD1983,UTM Zone11N
RONACHER MCKENZIE
GEOSCIENCE


0
500000
1000000
6400000
6000000
5600000
N
W
E
S
0.000054
0.000027
0.000018
0.000014
0.000011
0.000008
0.000007
0.000005
0.000004
0.000003
0.000003
0.000002
0.000002
0.000001
0.000001
0.000000
-0.000000
-0.000000
-0.000001
-0.000001
-0.000001
-0.000002
-0.000002
-0.000002
-0.000003
-0.000003
-0.000004
-0.000005
-0.000005
-0.000006
-0.000007
-0.000009
-0.000011
-0.000014
-0.000017
-0.000025
-0.000053
PRA_RTP_VD2_BW
(nT/m^2)
Legend:
PRA_PROJECT_AREA
Scale
0
51,000
102,000
153,000
204,000
255,000
m
Projection: NAD 83,UTM Zone11N
AGS
100 YEARS
ALBERTA GEOLOGICAL SURVEY
PRA-Second vertical derivative of RTP - black and white
Peach River Arch Property, Alberta, Canada.
Date: 2021-03-04
Scale:1: 5,000,000
Projection: NAD1983,UTM Zone11N
RONACHER MCKENZIE
GEOSCIENCE

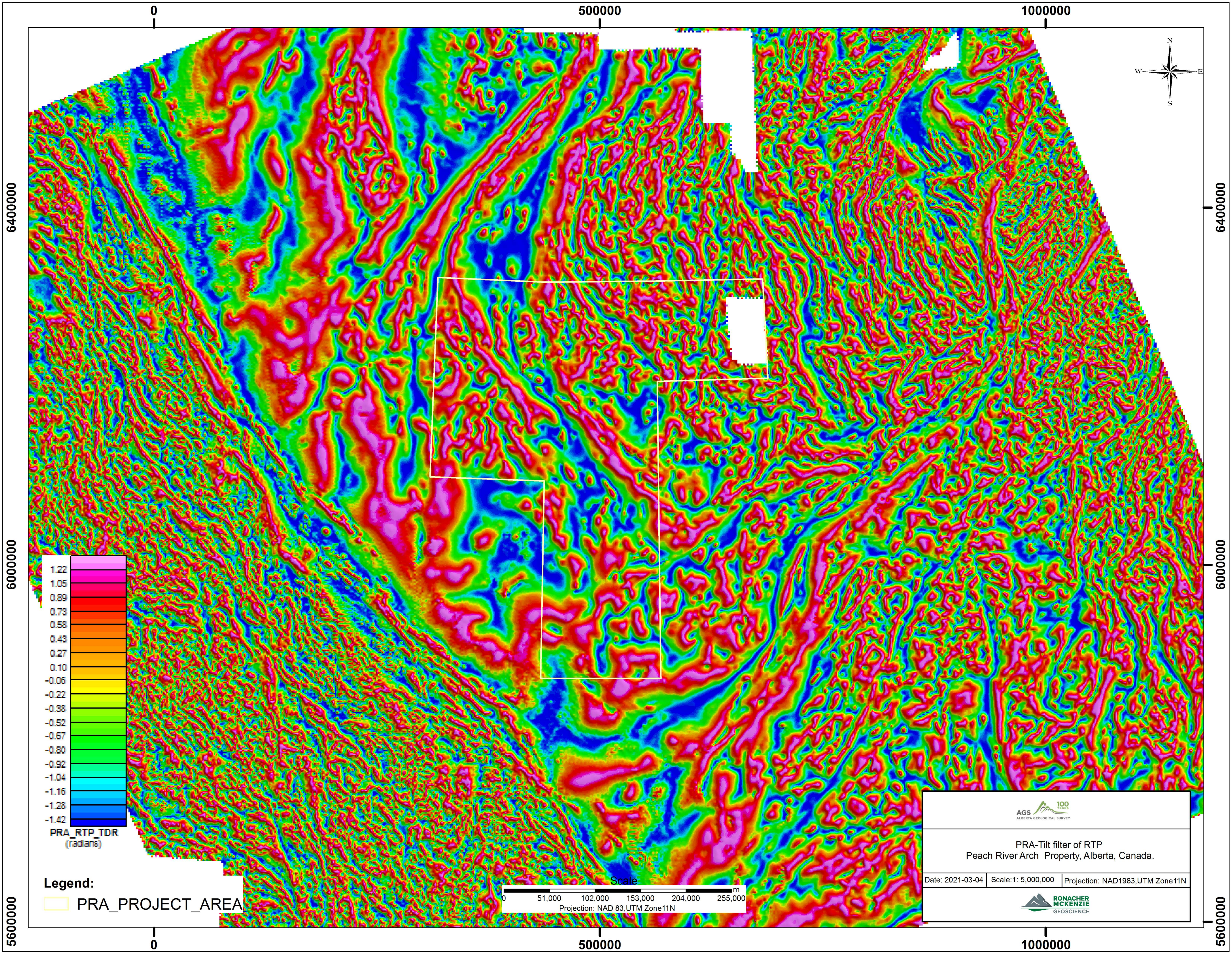


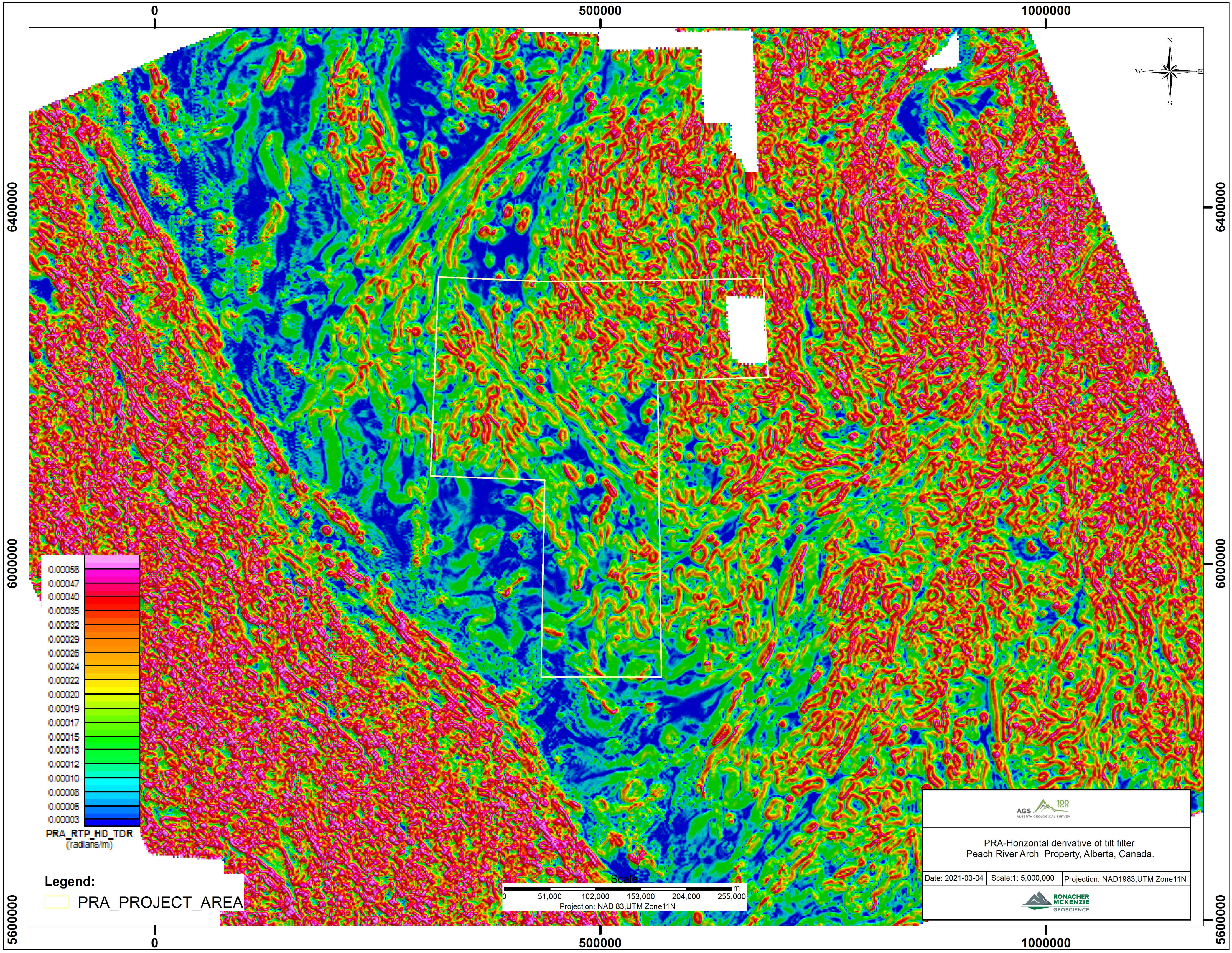
0
500000
1000000
6400000
6000000
5600000
N
S
W
E
910.30
647.29
547.34
489.29
445.58
407.95
372.43
340.30
309.68
283.93
261.07
237.76
217.13
197.80
178.63
160.20
143.23
128.32
113.73
95.47
76.45
58.31
42.67
26.82
10.92
-5.26
-22.82
-41.71
-62.86
-84.35
-104.32
-121.33
-136.01
-154.99
-186.08
-223.98
-293.67
PRA_RTP_BW
(nT)
Legend:
PRA_PROJECT_AREA
Scale
0 51,000 102,000 153,000 204,000 255,000 m
Projection: NAD 83,UTM Zone11N
AGS
100 YEARS
ALBERTA GEOLOGICAL SURVEY
PRA-Reduction to pole - black and white
Peach River Arch Property, Alberta, Canada.
Date: 2021-03-04
Scale:1: 5,000,000
Projection: NAD1983,UTM Zone11N
RONACHER MCKENZIE GEOSCIENCE


0
500000
1000000
6400000
6000000
5600000
N
S
W
E
0.05
0.05
0.04
0.03
0.03
0.02
0.02
0.02
0.02
0.02
0.01
0.01
0.01
0.01
0.01
0.01
0.00
0.00
0.00
PRA_RTP_THDR
(nT/m)
Legend:
PRA_PROJECT_AREA
Scale
m
0
51,000
102,000
153,000
204,000
255,000
Projection: NAD 83,UTM Zone11N
AGS
ALBERTA GEOLOGICAL SURVEY
100 YEARS
PRA-Total horizontal derivative of RTP
Peach River Arch Property, Alberta, Canada.
Date: 2021-03-04
Scale:1: 5,000,000
Projection: NAD1983,UTM Zone11N
RONACHER MCKENZIE GEOSCIENCE

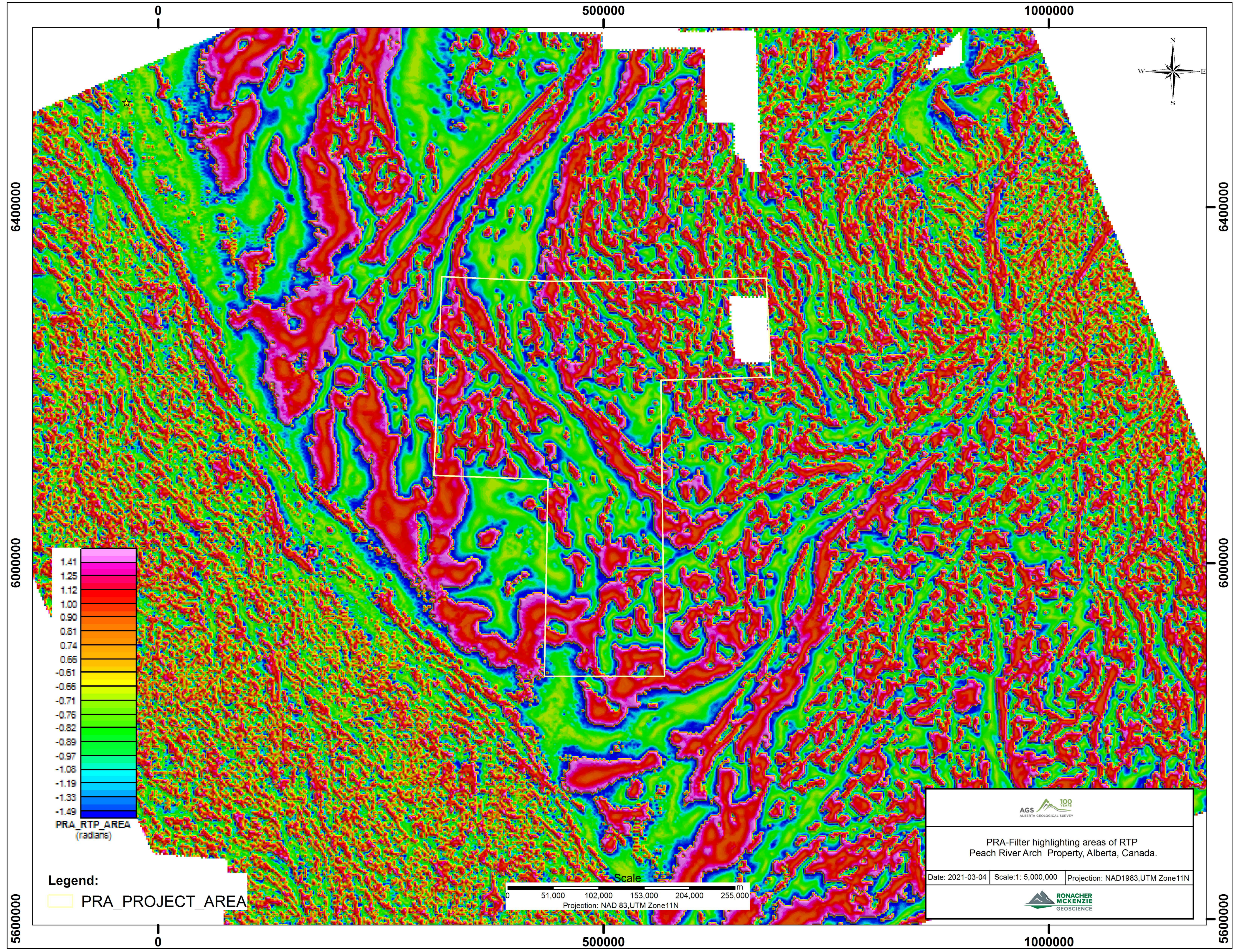


0
500000
1000000
6400000
6000000
5600000
N
S
E
W
0.000014
0.000008
0.000005
0.000004
0.000002
0.000002
0.000001
0.000000
-0.000000
-0.000000
-0.000001
-0.000001
-0.000002
-0.000002
-0.000003
-0.000004
-0.000006
-0.000009
-0.000019
PRA_RTP_THDR_VD1
(nT/m^2)
Legend:
PRA_PROJECT_AREA
Scale
m
0
51,000
102,000
153,000
204,000
255,000
Projection: NAD 83,UTM Zone11N
AGS
100 YEARS
ALBERTA GEOLOGICAL SURVEY
PRA-First vertical derivative of total horizontal derivative
Peach River Arch Property, Alberta, Canada.
Date: 2021-03-04
Scale:1: 5,000,000
Projection: NAD1983,UTM Zone11N
RONACHER MCKENZIE GEOSCIENCE

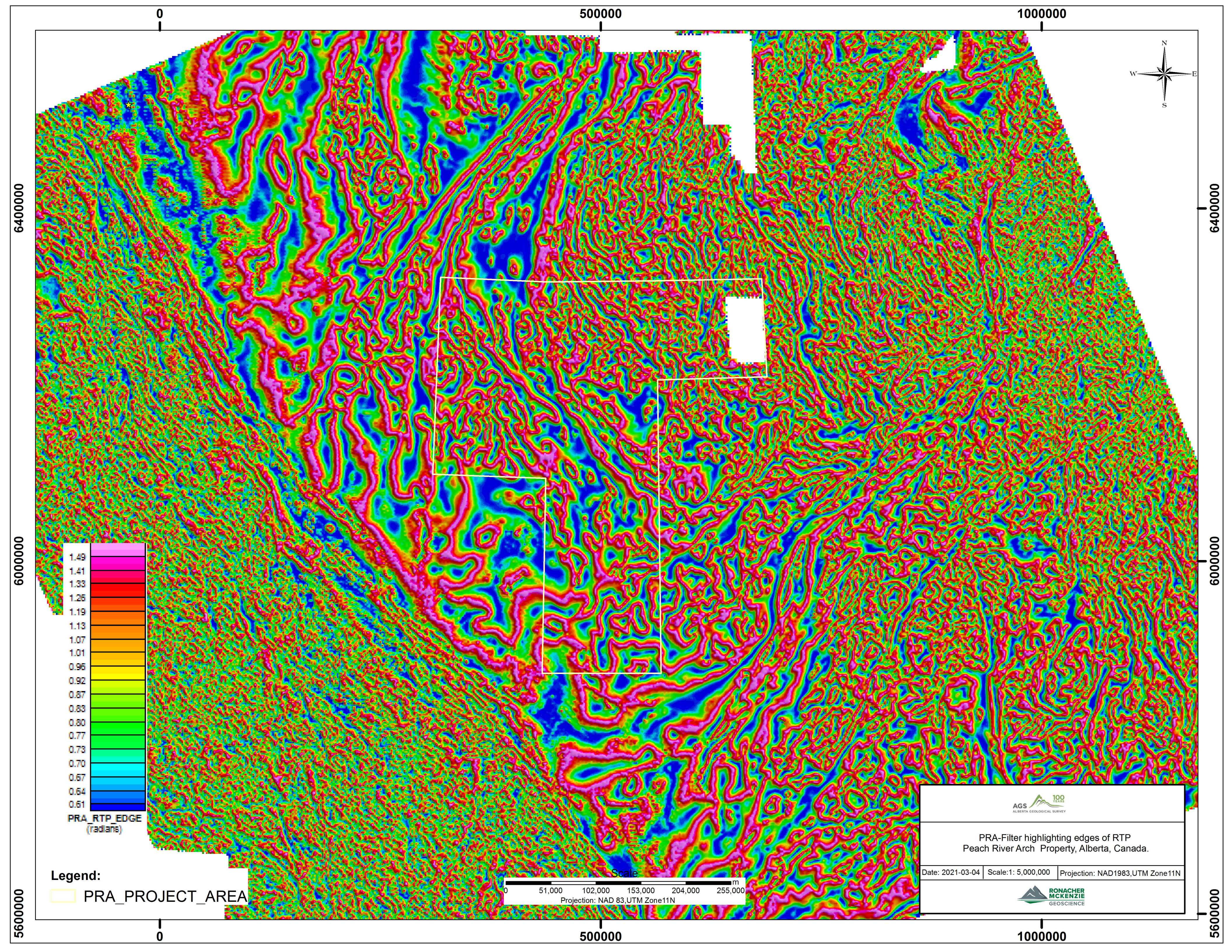

0
500000
1000000
6400000
6000000
5600000
N
S
E
W
1.22
1.05
0.89
0.73
0.58
0.43
0.27
0.10
-0.06
-0.22
-0.38
-0.52
-0.67
-0.80
-0.92
-1.04
-1.16
-1.28
-1.42
PRA_RTP_TDR
(radians)
Legend:
PRA_PROJECT_AREA
Scale
m
0
51,000
102,000
153,000
204,000
255,000
Projection: NAD 83,UTM Zone11N
AGS
100 YEARS
ALBERTA GEOLOGICAL SURVEY
PRA-Tilt filter of RTP
Peach River Arch Property, Alberta, Canada.
Date: 2021-03-04
Scale:1: 5,000,000
Projection: NAD1983,UTM Zone11N
RONACHER MCKENZIE GEOSCIENCE



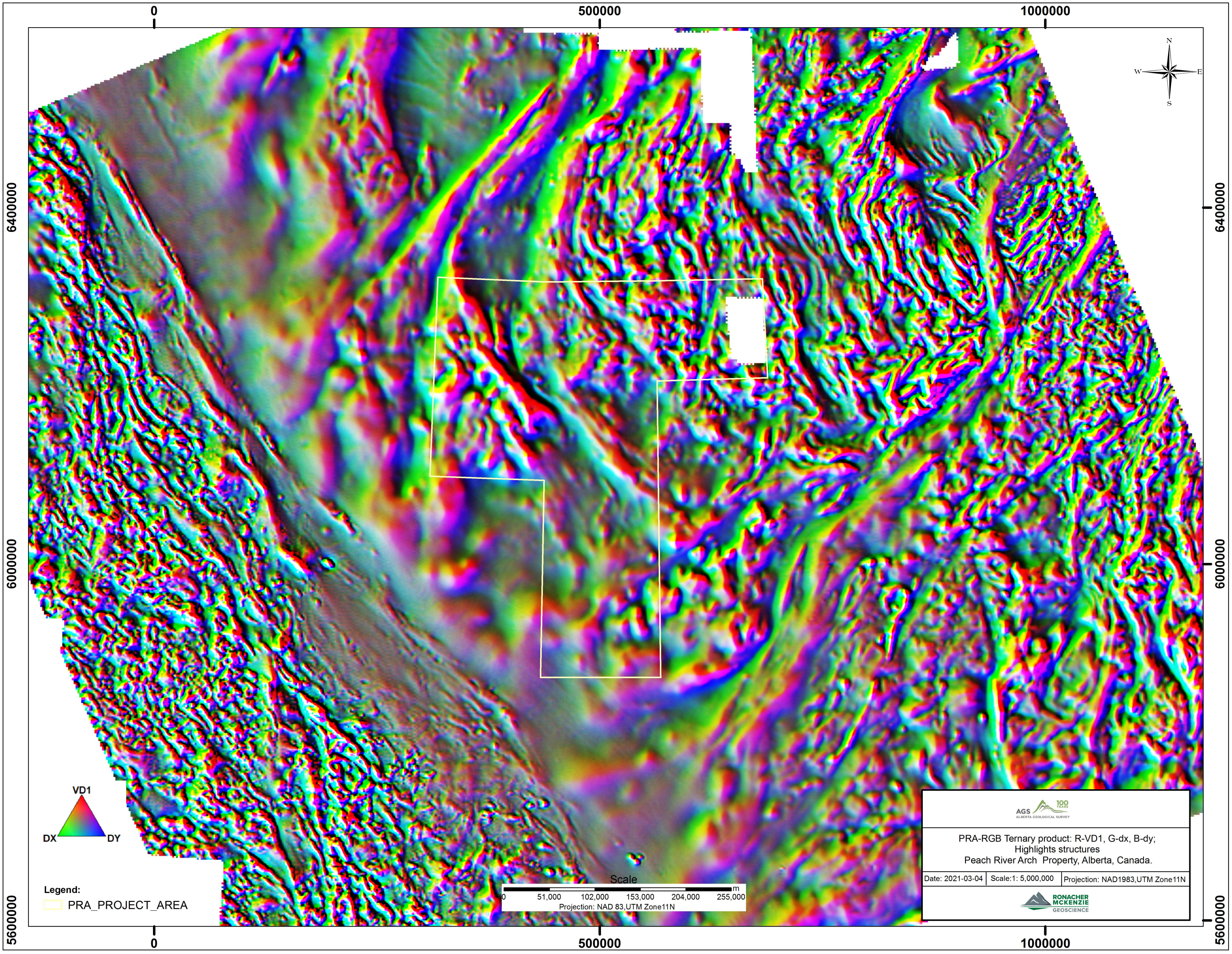
0
500000
1000000
6400000
6000000
5600000
N
W
E
S
0.00058
0.00047
0.00040
0.00035
0.00032
0.00029
0.00026
0.00024
0.00022
0.00020
0.00019
0.00017
0.00015
0.00013
0.00012
0.00010
0.00008
0.00006
0.00003
PRA_RTP_HD_TDR
(radians/m)
Legend:
PRA_PROJECT_AREA
Scale
0 51,000 102,000 153,000 204,000 255,000 m
Projection: NAD 83,UTM Zone11N
AGS ALBERTA GEOLOGICAL SURVEY 100 YEARS
PRA-Horizontal derivative of tilt filter
Peach River Arch Property, Alberta, Canada.
Date: 2021-03-04
Scale:1: 5,000,000
Projection: NAD1983,UTM Zone11N
RONACHER MCKENZIE GEOSCIENCE



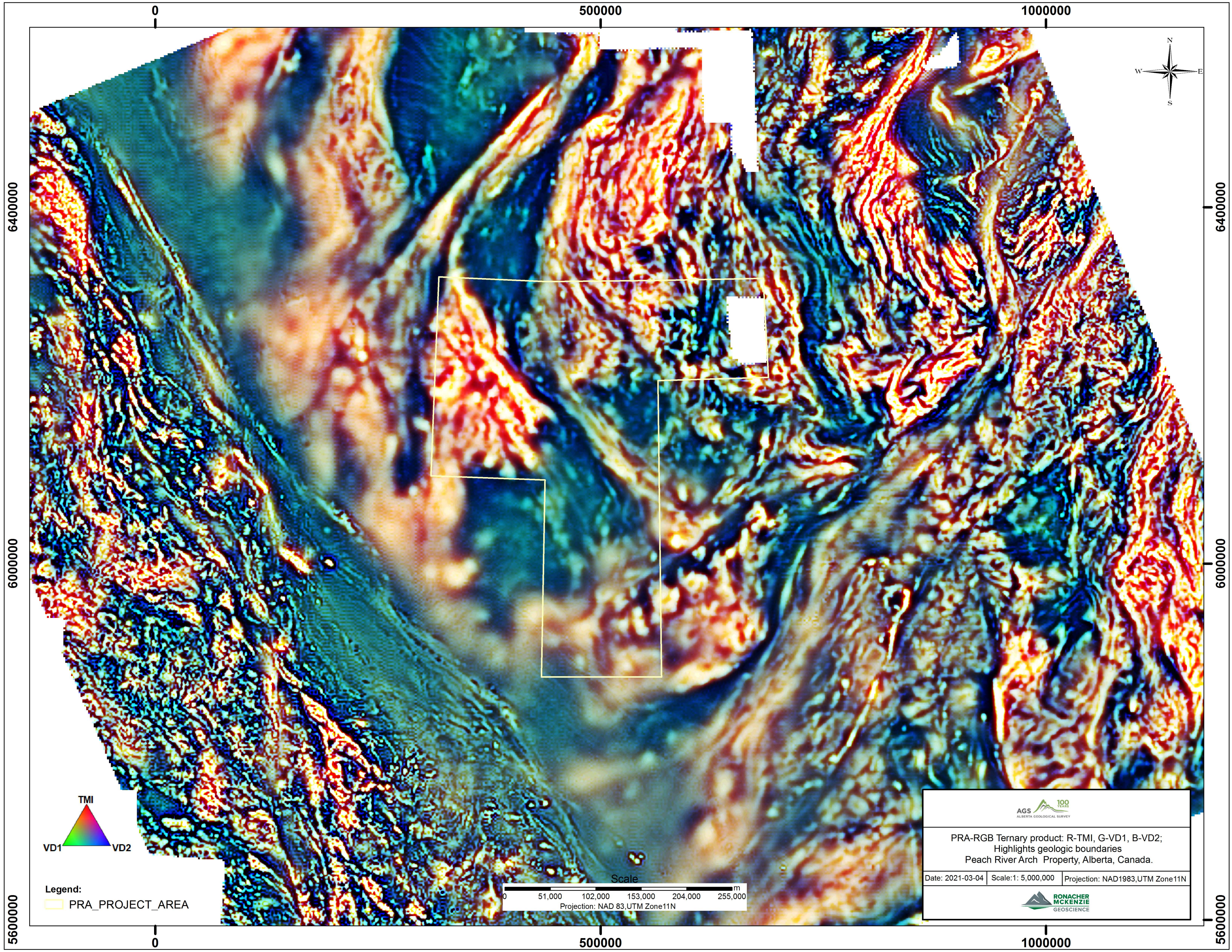
0
500000
1000000
6400000
6000000
5600000
N
S
E
W
1.41
1.25
1.12
1.00
0.90
0.81
0.74
0.66
-0.61
-0.66
-0.71
-0.76
-0.82
-0.89
-0.97
-1.08
-1.19
-1.33
-1.49
PRA_RTP_AREA
(radians)
Legend:
PRA_PROJECT_AREA
Scale
0 51,000 102,000 153,000 204,000 255,000
m
Projection: NAD 83,UTM Zone11N
AGS
ALBERTA GEOLOGICAL SURVEY
PRA-Filter highlighting areas of RTP
Peach River Arch Property, Alberta, Canada.
Date: 2021-03-04
Scale:1: 5,000,000
Projection: NAD1983,UTM Zone11N
RONACHER MCKENZIE GEOSCIENCE



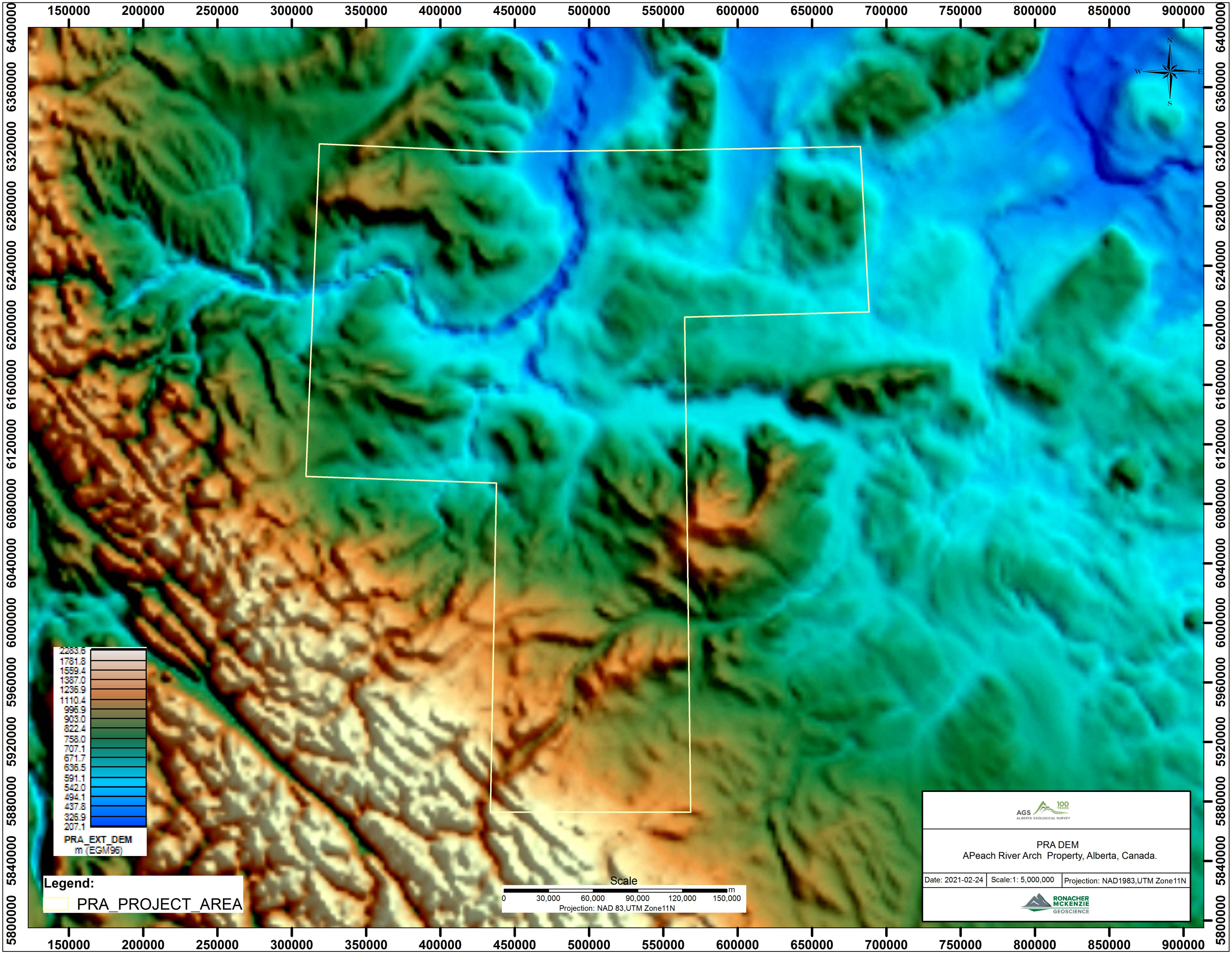
0
500000
1000000
6400000
6000000
5600000
N
S
E
W
1.49
1.41
1.33
1.26
1.19
1.13
1.07
1.01
0.96
0.92
0.87
0.83
0.80
0.77
0.73
0.70
0.67
0.64
0.61
PRA_RTP_EDGE
(radians)
Legend:
PRA_PROJECT_AREA
Scale
0 51,000 102,000 153,000 204,000 255,000
m
Projection: NAD 83,UTM Zone11N
AGS ALBERTA GEOLOGICAL SURVEY
100 YEARS
PRA-Filter highlighting edges of RTP
Peach River Arch Property, Alberta, Canada.
Date: 2021-03-04
Scale:1: 5,000,000
Projection: NAD1983,UTM Zone11N
RONACHER MCKENZIE GEOSCIENCE



0
500000
1000000
6400000
6000000
5600000
N
W
E
S
VD1
DX
DY
Legend:
PRA_PROJECT_AREA
Scale
0 51,000 102,000 153,000 204,000 255,000
m
Projection: NAD 83,UTM Zone11N
AGS
ALBERTA GEOLOGICAL SURVEY
PRA-RGB Ternary product: R-VD1, G-dx, B-dy;
Highlights structures
Peach River Arch Property, Alberta, Canada.
Date: 2021-03-04
Scale:1: 5,000,000
Projection: NAD1983,UTM Zone11N
RONACHER MCKENZIE GEOSCIENCE



0
500000
1000000
6400000
6000000
5600000
N
S
E
W
TMI
VD1
VD2
Legend:
PRA_PROJECT_AREA
Scale
m
0
51,000
102,000
153,000
204,000
255,000
Projection: NAD 83,UTM Zone11N
AGS
ALBERTA GEOLOGICAL SURVEY
100 YEARS
PRA-RGB Ternary product: R-TMI, G-VD1, B-VD2;
Highlights geologic boundaries
Peach River Arch Property, Alberta, Canada.
Date: 2021-03-04
Scale:1: 5,000,000
Projection: NAD1983,UTM Zone11N
RONACHER MCKENZIE GEOSCIENCE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200000
250000
300000
350000
400000
450000
500000
550000
600000
650000
700000
750000
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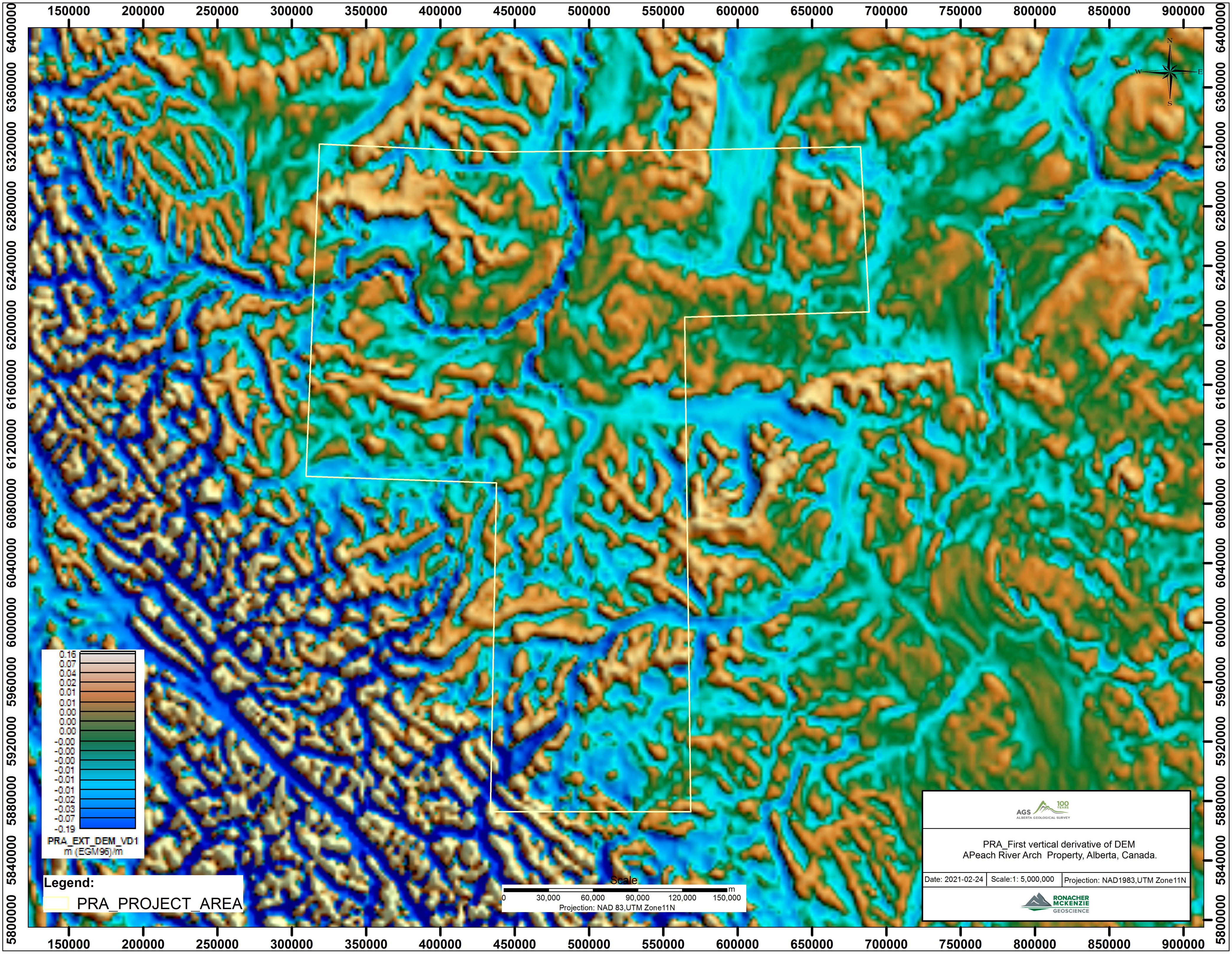
900000
6400000
6360000
6320000
6280000
6240000
6200000
6160000
6120000
6080000
6040000
6000000
5960000
5920000
5880000
5840000
5800000
N
W
E
S
2283.6
1781.8
1559.4
1387.0
1236.9
1110.4
996.9
903.0
822.4
758.0
707.1
671.7
636.5
591.1
542.0
494.1
437.8
326.9
207.1
PRA_EXT_DEM
m (EGM96)
Legend:
PRA_PROJECT_AREA
Scale
0
30,000
60,000
90,000
120,000
150,000
m
Projection: NAD 83,UTM Zone11N
AGS
ALBERTA GEOLOGICAL SURVEY
100 YEARS
PRA DEM
APeach River Arch Property, Alberta, Canada.
Date: 2021-02-24
Scale:1: 5,000,000
Projection: NAD1983,UTM Zone11N
RONACHER MCKENZIE GEOSCIENCE



150000
200000
250000
300000
350000
400000
450000
500000
550000
600000
650000
700000
750000
800000
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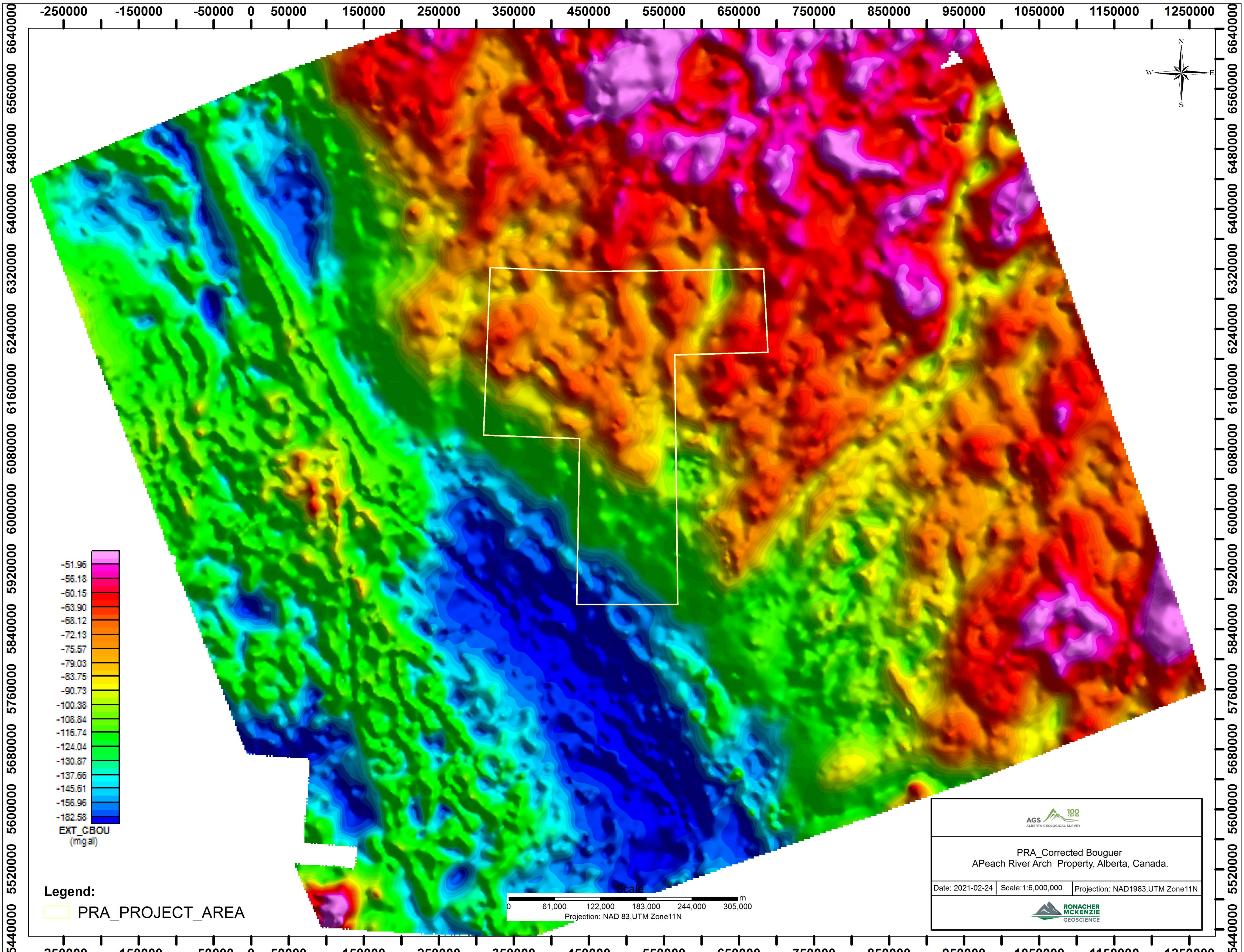
900000
6400000
6360000
6320000
6280000
6240000
6200000
6160000
6120000
6080000
6040000
6000000
5960000
5920000
5880000
5840000
5800000
N
W
E
S
0.16
0.07
0.04
0.02
0.01
0.01
0.00
0.00
0.00
-0.00
-0.00
-0.00
-0.01
-0.01
-0.01
-0.02
-0.03
-0.07
-0.19
PRA_EXT_DEM_VD1
m (EGM96)/m
Legend:
PRA_PROJECT_AREA
Scale
m
0
30,000
60,000
90,000
120,000
150,000
Projection: NAD 83,UTM Zone11N
AGS ALBERTA GEOLOGICAL SURVEY 100 YEARS
PRA_First vertical derivative of DEM
APeach River Arch Property, Alberta, Canada.
Date: 2021-02-24
Scale:1: 5,000,000
Projection: NAD1983,UTM Zone11N
RONACHER MCKENZIE GEOSCIENCE


-250000
-150000
-50000
0
50000
150000
250000
350000
450000
550000
650000
750000
850000
950000
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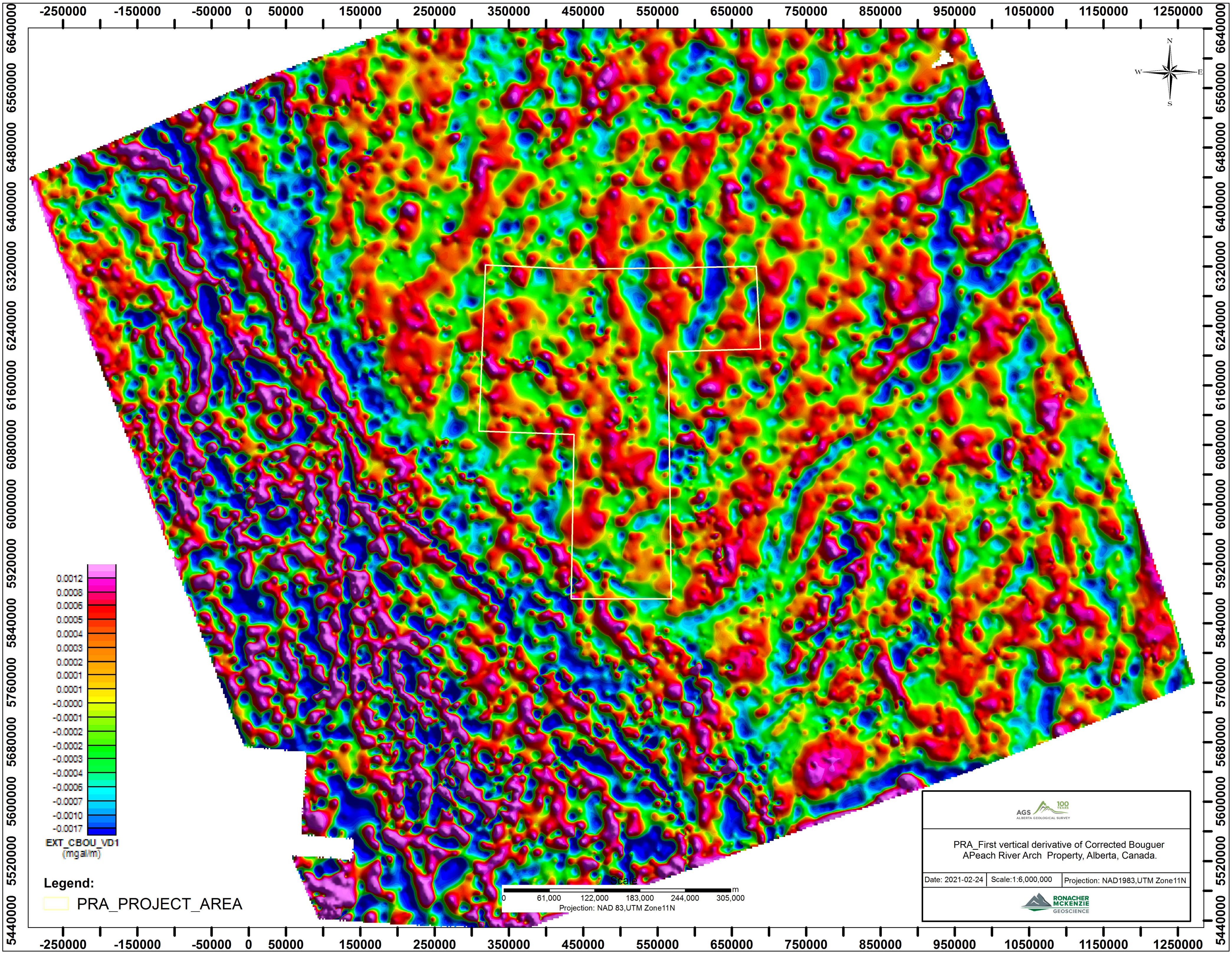
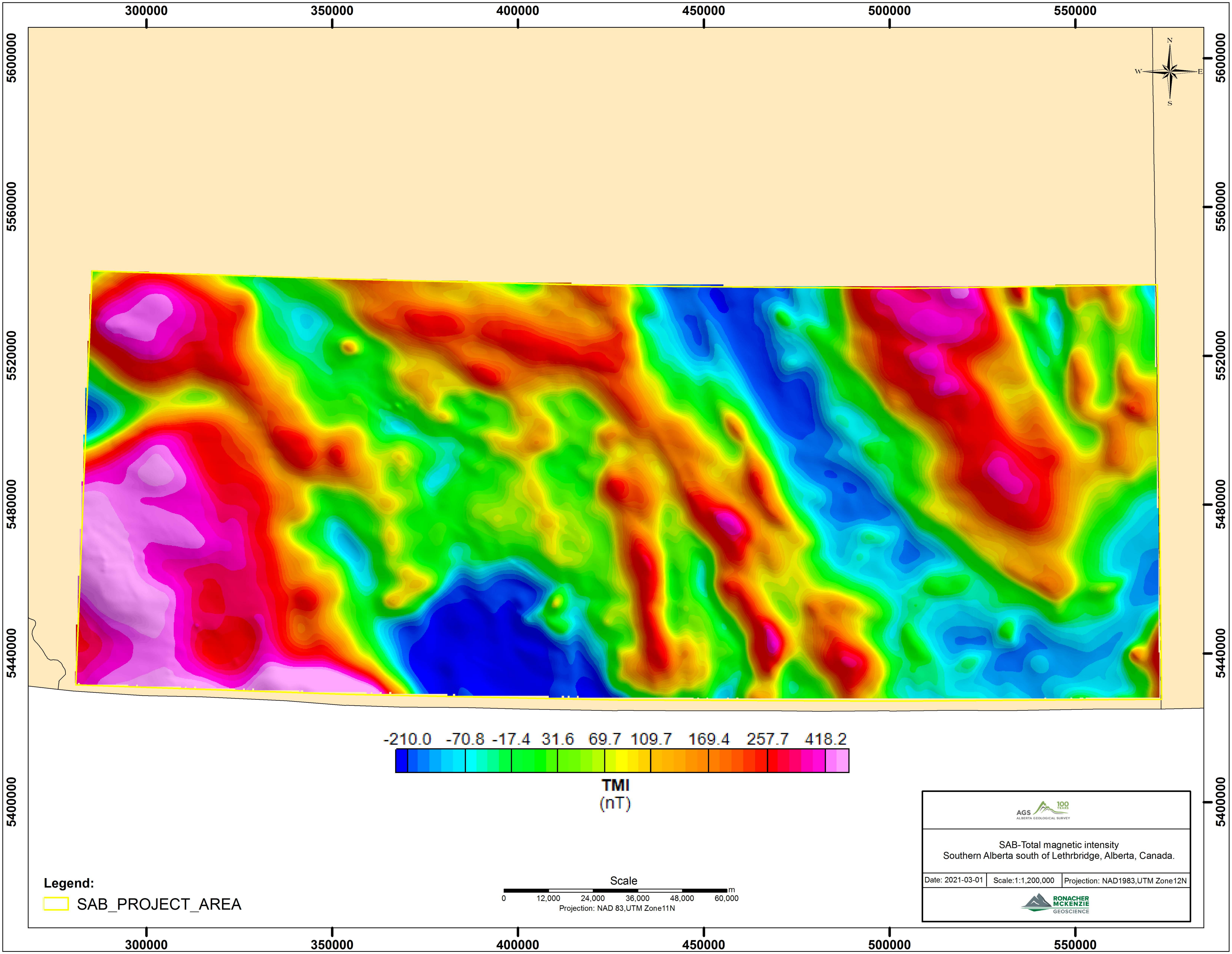
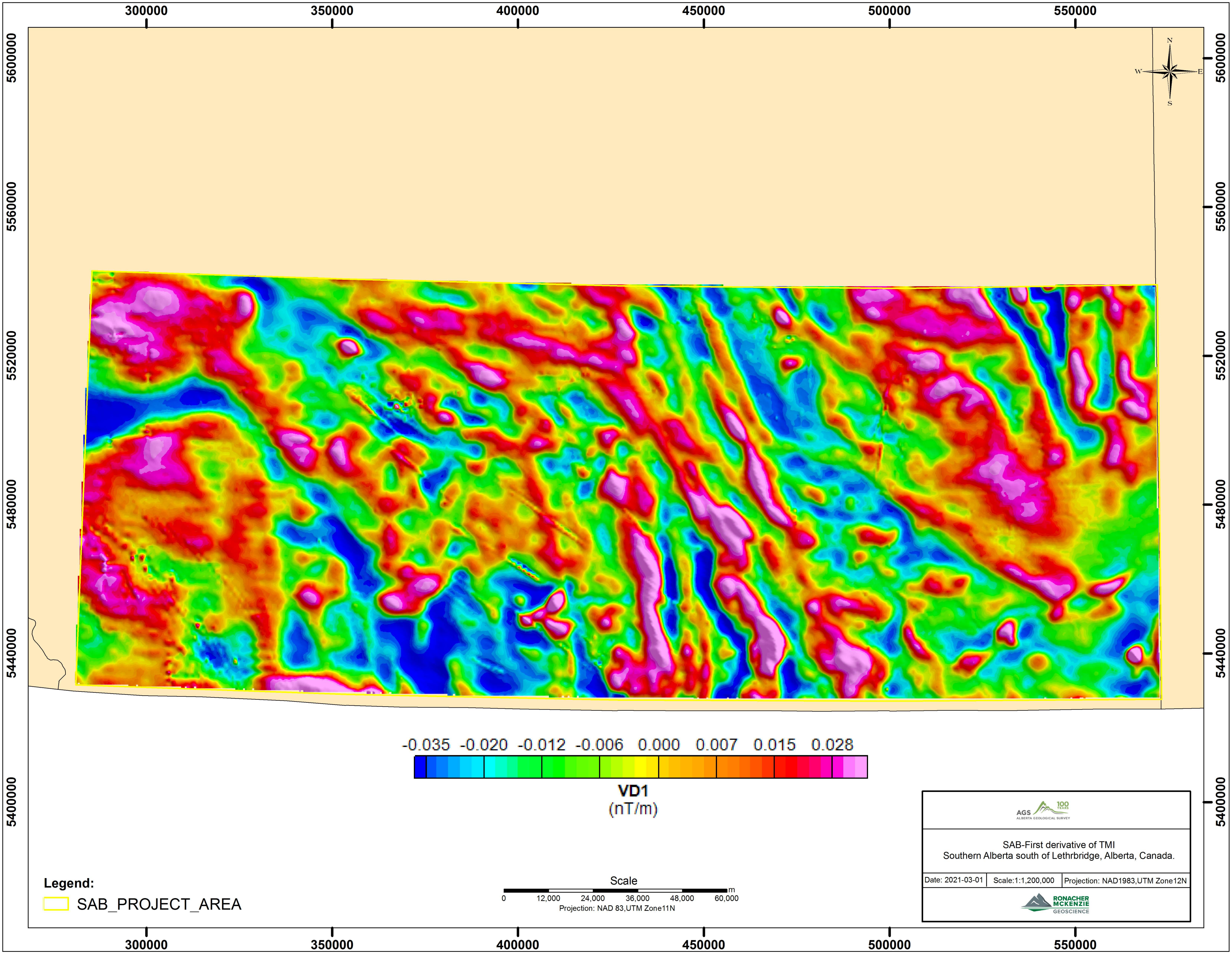
1150000
1250000
6640000
6560000
6480000
6400000
6320000
6240000
6160000
6080000
6000000
5920000
5840000
5760000
5680000
5600000
5520000
5440000
N
W
E
S
-51.96
-56.18
-60.15
-63.90
-68.12
-72.13
-75.57
-79.03
-83.75
-90.73
-100.38
-108.84
-116.74
-124.04
-130.87
-137.66
-145.61
-156.96
-182.58
EXT_CBOU
(mgal)
Legend:
PRA_PROJECT_AREA
Scale
0
61,000
122,000
183,000
244,000
305,000
m
Projection: NAD 83,UTM Zone11N
AGS
ALBERTA GEOLOGICAL SURVEY
100 YEARS
PRA_Corrected Bouguer
APeach River Arch Property, Alberta, Canada.
Date: 2021-02-24
Scale:1:6,000,000
Projection: NAD1983,UTM Zone11N
RONACHER MCKENZIE GEOSCIENCE

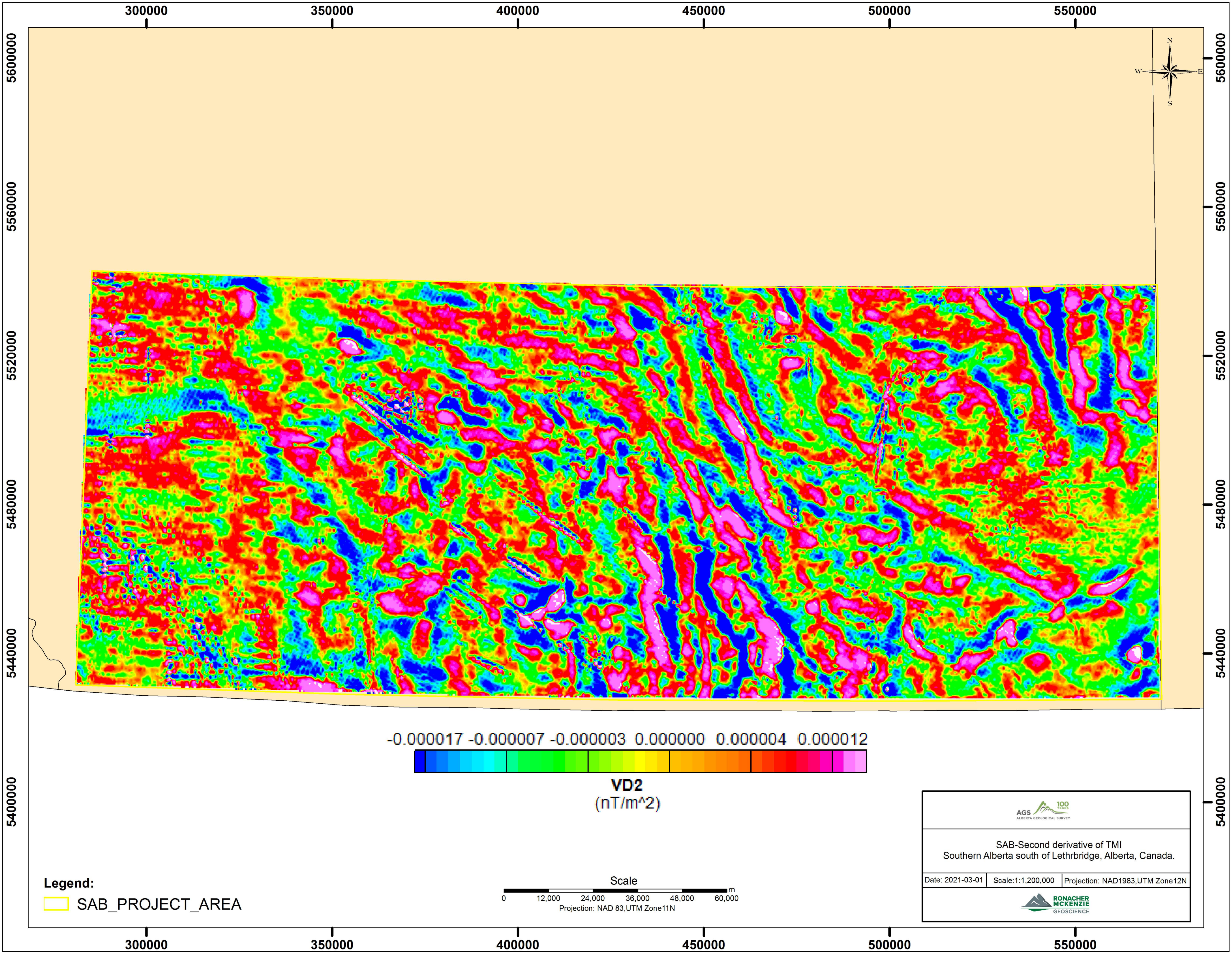


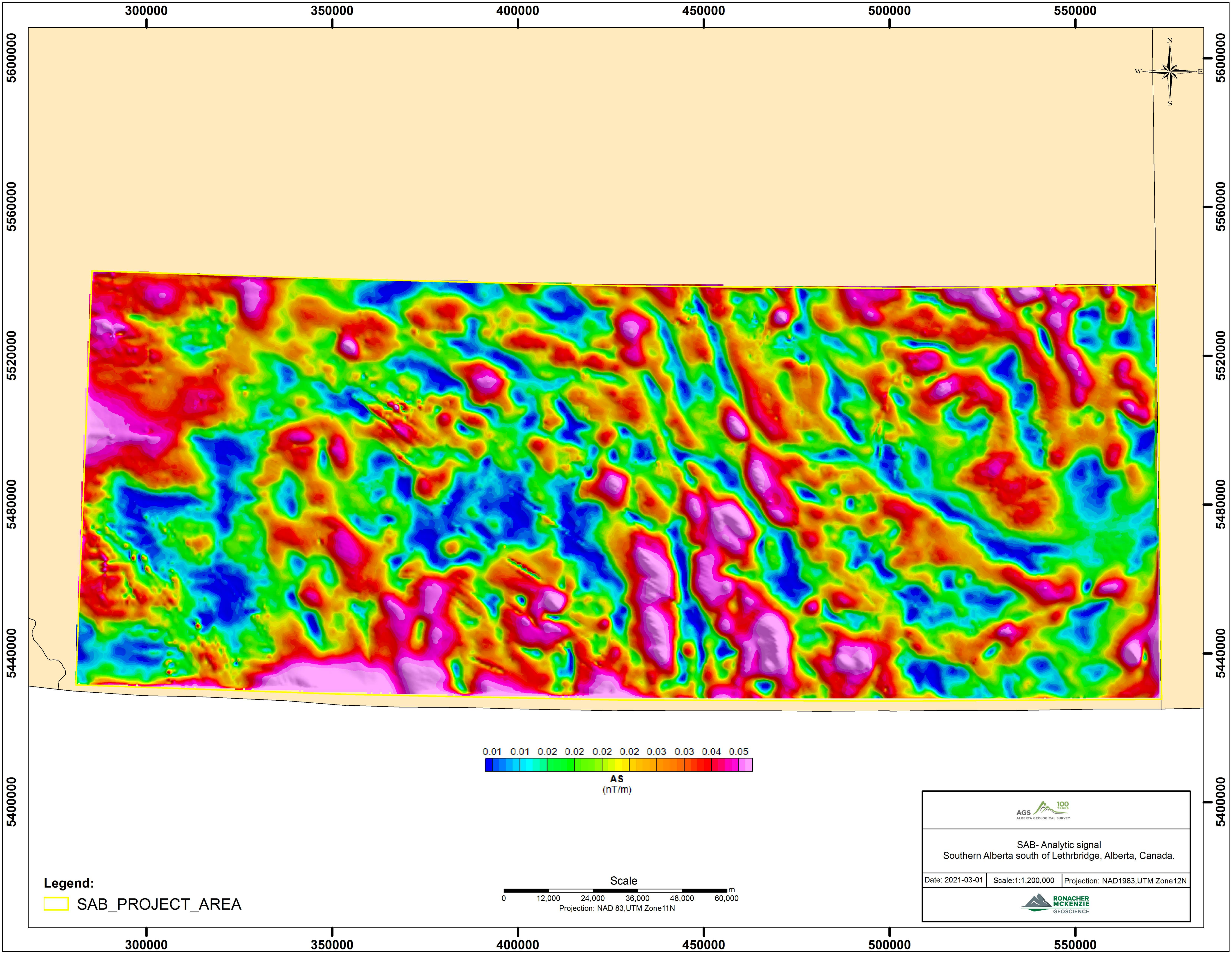
-250000
-150000
-50000
0
50000
150000
250000
350000
450000
550000
650000
750000
850000
950000
1050000
1150000
1250000
6640000
6560000
6480000
6400000
6320000
6240000
6160000
6080000
6000000
5920000
5840000
5760000
5680000
5600000
5520000
5440000
N
S
W
E
0.0012
0.0008
0.0006
0.0005
0.0004
0.0003
0.0002
0.0001
0.0001
-0.0000
-0.0001
-0.0002
-0.0002
-0.0003
-0.0004
-0.0006
-0.0007
-0.0010
-0.0017
EXT_CBOU_VD1
(mgal/m)
Legend:
PRA_PROJECT_AREA
Scale
m
0
61,000
122,000
183,000
244,000
305,000
Projection: NAD 83,UTM Zone11N
AGS
ALBERTA GEOLOGICAL SURVEY
100 YEARS
PRA_First vertical derivative of Corrected Bouguer
APeach River Arch Property, Alberta, Canada.
Date: 2021-02-24
Scale:1:6,000,000
Projection: NAD1983,UTM Zone11N
RONACHER MCKENZIE
GEOSCIENCE

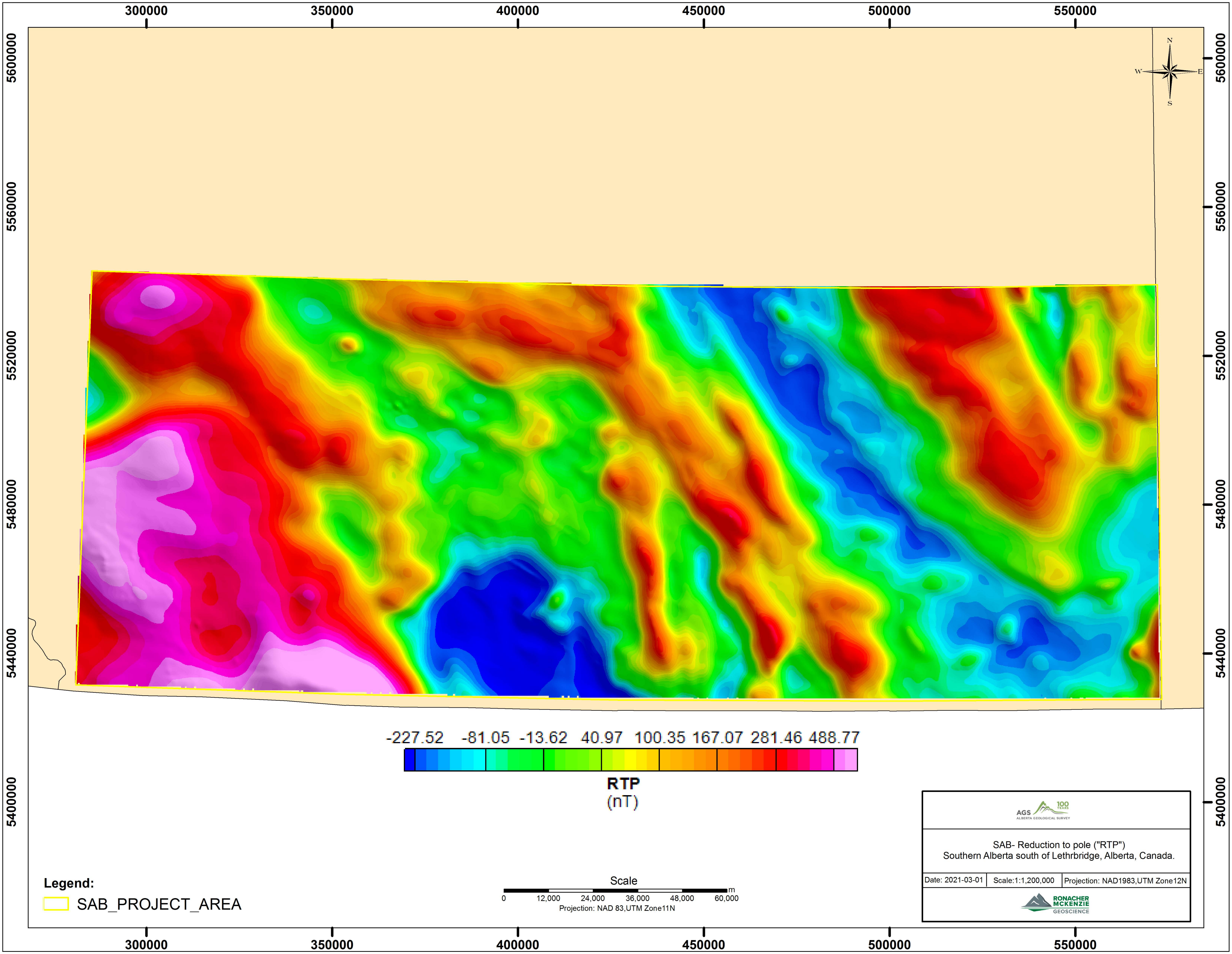


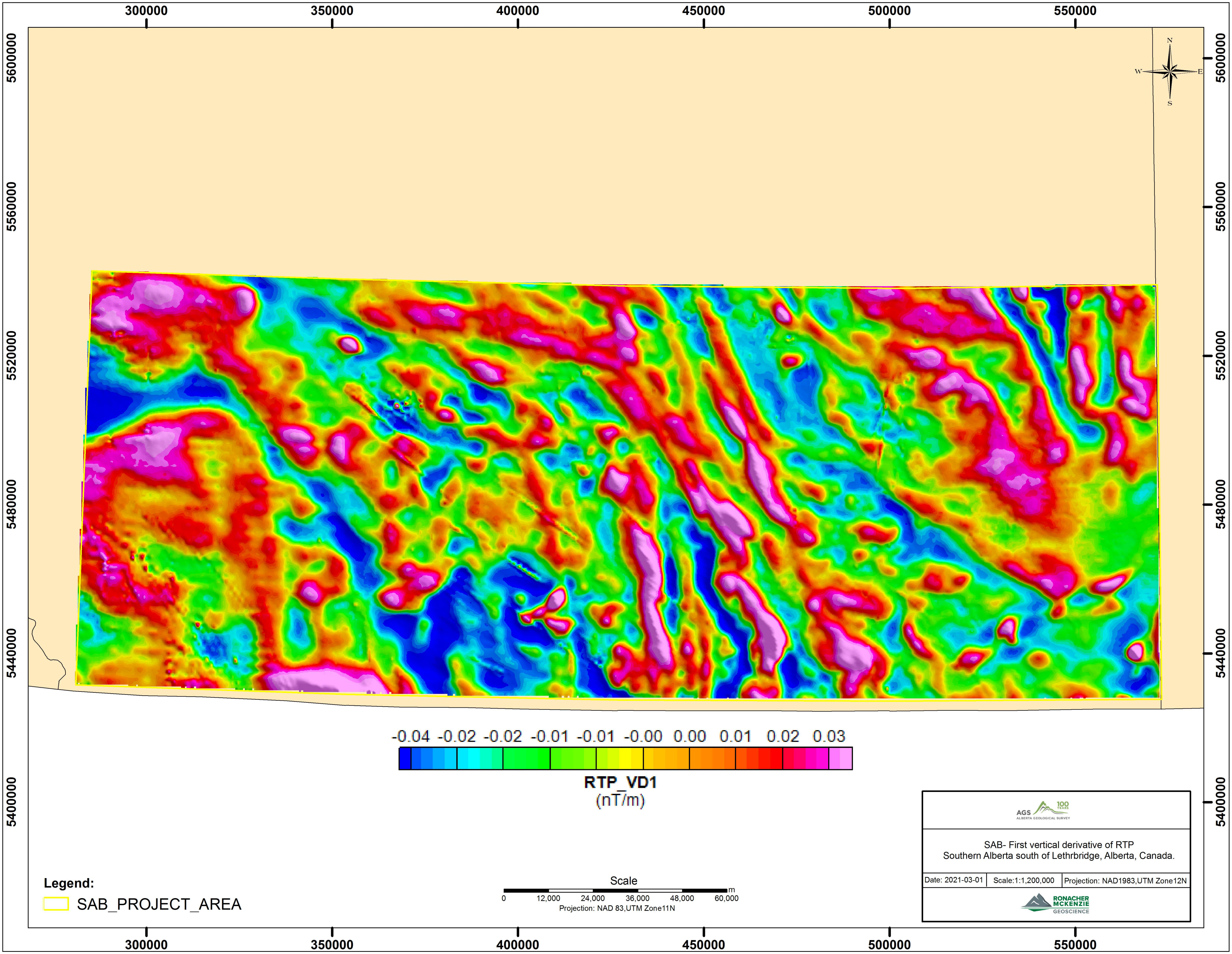
300000
350000
400000
450000
500000
550000
5600000
5560000
5520000
5480000
5440000
5400000
N
S
W
E
-210.0 -70.8 -17.4 31.6 69.7 109.7 169.4 257.7 418.2
TMI
(nT)
Legend:
SAB_PROJECT_AREA
Scale
0 12,000 24,000 36,000 48,000 60,000 m
Projection: NAD 83,UTM Zone11N
AGS ALBERTA GEOLOGICAL SURVEY 100 YEARS
SAB-Total magnetic intensity
Southern Alberta south of Lethrbridge, Alberta, Canada.
Date: 2021-03-01
Scale:1:1,200,000
Projection: NAD1983,UTM Zone12N
RONACHER MCKENZIE GEOSCIENCE


300000
350000
400000
450000
500000
550000
5600000
5560000
5520000
5480000
5440000
5400000
N
S
W
E
-0.035 -0.020 -0.012 -0.006 0.000 0.007 0.015 0.028
VD1
(nT/m)
AGS ALBERTA GEOLOGICAL SURVEY 100 YEARS
SAB-First derivative of TMI
Southern Alberta south of Lethrbridge, Alberta, Canada.
Date: 2021-03-01
Scale:1:1,200,000
Projection: NAD1983,UTM Zone12N
RONACHER MCKENZIE GEOSCIENCE
Legend:
SAB_PROJECT_AREA
Scale
0 12,000 24,000 36,000 48,000 60,000 m
Projection: NAD 83,UTM Zone11N

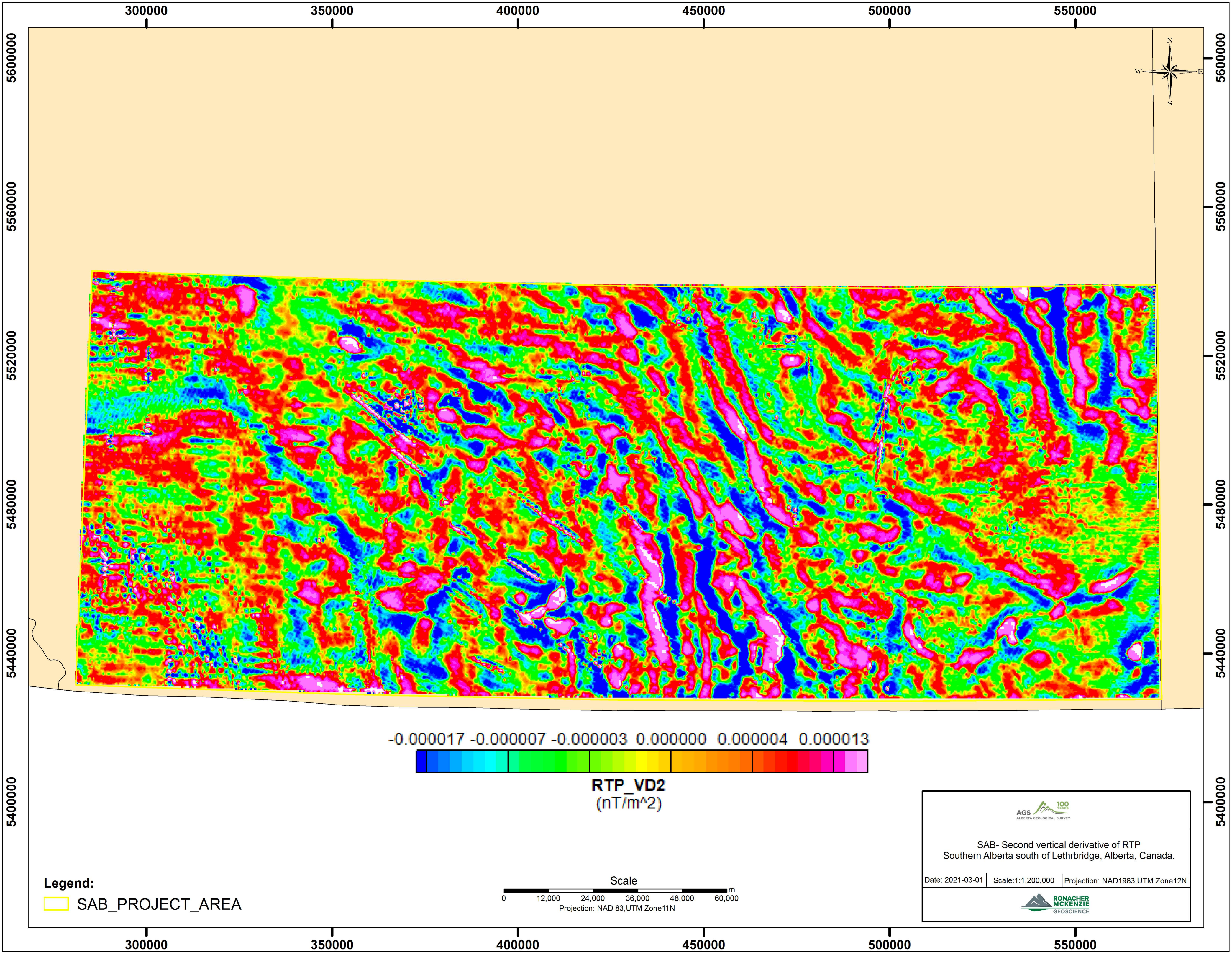

300000
350000
400000
450000
500000
550000
5600000
5560000
5520000
5480000
5440000
5400000
N
W
E
S
-0.000017 -0.000007 -0.000003 0.000000 0.000004 0.000012
VD2
(nT/m^2)
AGS 100 YEARS
ALBERTA GEOLOGICAL SURVEY
SAB-Second derivative of TMI
Southern Alberta south of Lethrbridge, Alberta, Canada.
Date: 2021-03-01
Scale:1:1,200,000
Projection: NAD1983,UTM Zone12N
RONACHER MCKENZIE GEOSCIENCE
Legend:
SAB_PROJECT_AREA
Scale
m
0
12,000
24,000
36,000
48,000
60,000
Projection: NAD 83,UTM Zone11N


300000 350000 400000 450000 500000 550000
5600000 5560000 5520000 5480000 5440000 5400000
N S W E
0.01 0.01 0.02 0.02 0.02 0.02 0.03 0.03 0.04 0.05
AS
(nT/m)
SAB- Analytic signal
Southern Alberta south of Lethrbridge, Alberta, Canada.
Date: 2021-03-01
Scale:1:1,200,000
Projection: NAD1983,UTM Zone12N
Legend:
SAB_PROJECT_AREA
Scale
0 12,000 24,000 36,000 48,000 60,000 m
Projection: NAD 83,UTM Zone11N

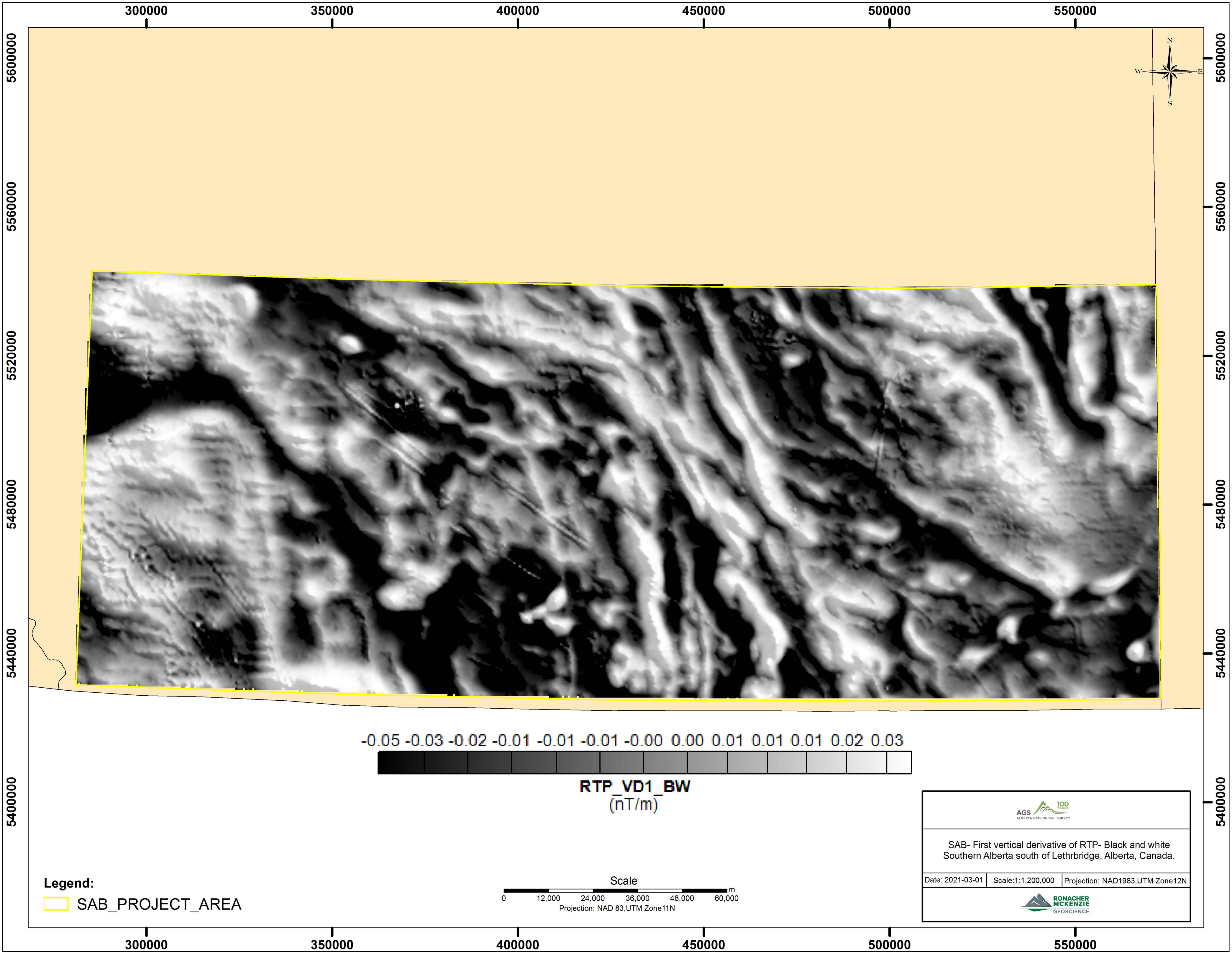

300000
350000
400000
450000
500000
550000
5600000
5560000
5520000
5480000
5440000
5400000
N
S
W
E
-227.52 -81.05 -13.62 40.97 100.35 167.07 281.46 488.77
RTP
(nT)
Legend:
SAB_PROJECT_AREA
Scale
0 12,000 24,000 36,000 48,000 60,000 m
Projection: NAD 83,UTM Zone11N
AGS
ALBERTA GEOLOGICAL SURVEY
SAB- Reduction to pole ("RTP")
Southern Alberta south of Lethrbridge, Alberta, Canada.
Date: 2021-03-01
Scale:1:1,200,000
Projection: NAD1983,UTM Zone12N
RONACHER MCKENZIE GEOSCIENCE



300000
350000
400000
450000
500000
550000
5600000
5560000
5520000
5480000
5440000
5400000
N
S
W
E
-0.04 -0.02 -0.02 -0.01 -0.01 -0.00 0.00 0.01 0.02 0.03
RTP_VD1
(nT/m)
AGS ALBERTA GEOLOGICAL SURVEY
100 YEARS
SAB- First vertical derivative of RTP
Southern Alberta south of Lethrbridge, Alberta, Canada.
Date: 2021-03-01
Scale:1:1,200,000
Projection: NAD1983,UTM Zone12N
RONACHER MCKENZIE GEOSCIENCE
Legend:
SAB_PROJECT_AREA
Scale
m
0 12,000 24,000 36,000 48,000 60,000
Projection: NAD 83,UTM Zone11N



300000
350000
400000
450000
500000
550000
5600000
5560000
5520000
5480000
5440000
5400000
N
S
W
E
-0.000017 -0.000007 -0.000003 0.000000 0.000004 0.000013
RTP_VD2
(nT/m^2)
AGS
100 YEARS
ALBERTA GEOLOGICAL SURVEY
SAB- Second vertical derivative of RTP
Southern Alberta south of Lethrbridge, Alberta, Canada.
Date: 2021-03-01
Scale:1:1,200,000
Projection: NAD1983,UTM Zone12N
RONACHER MCKENZIE GEOSCIENCE
Legend:
SAB_PROJECT_AREA
Scale
m
0
12,000
24,000
36,000
48,000
60,000
Projection: NAD 83,UTM Zone11N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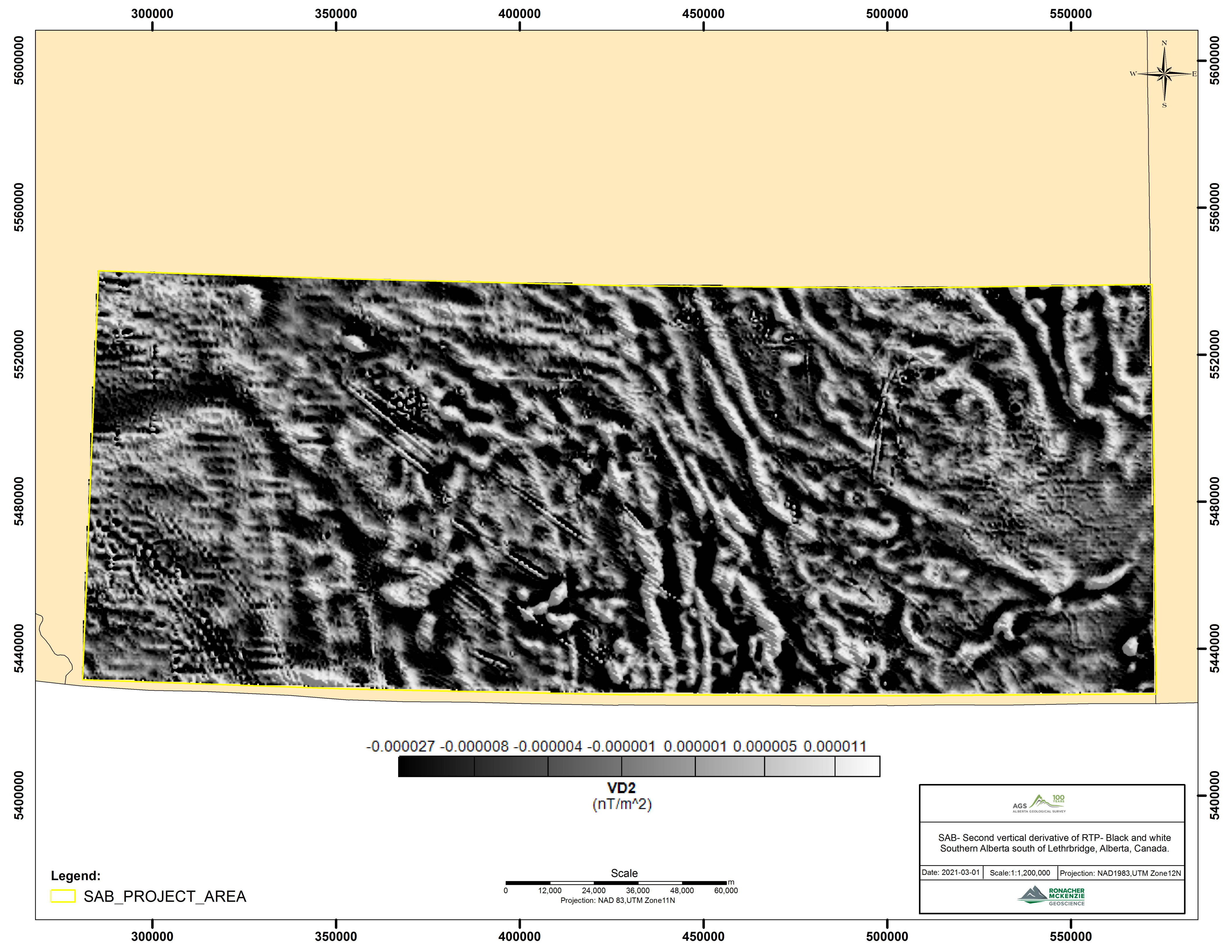
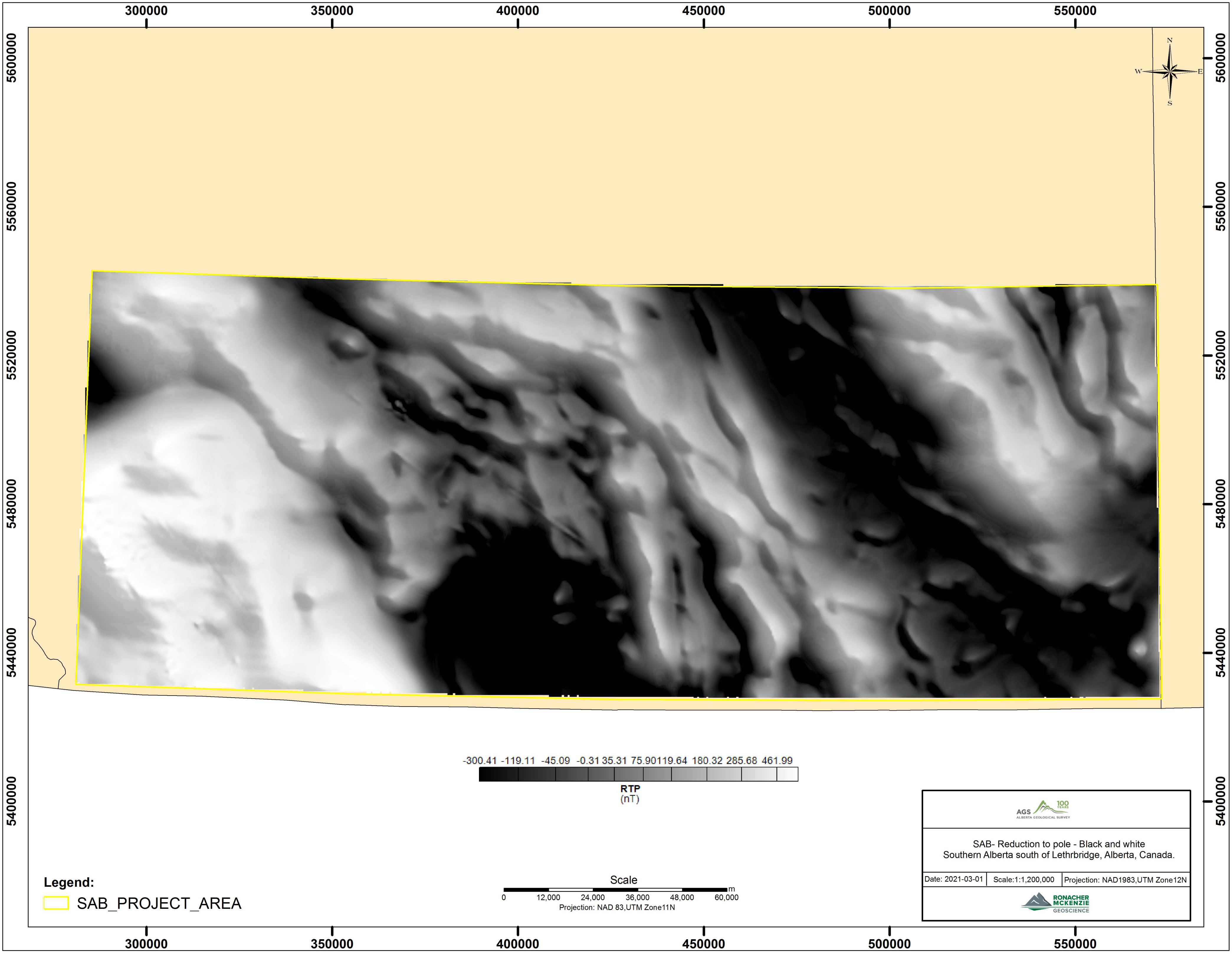
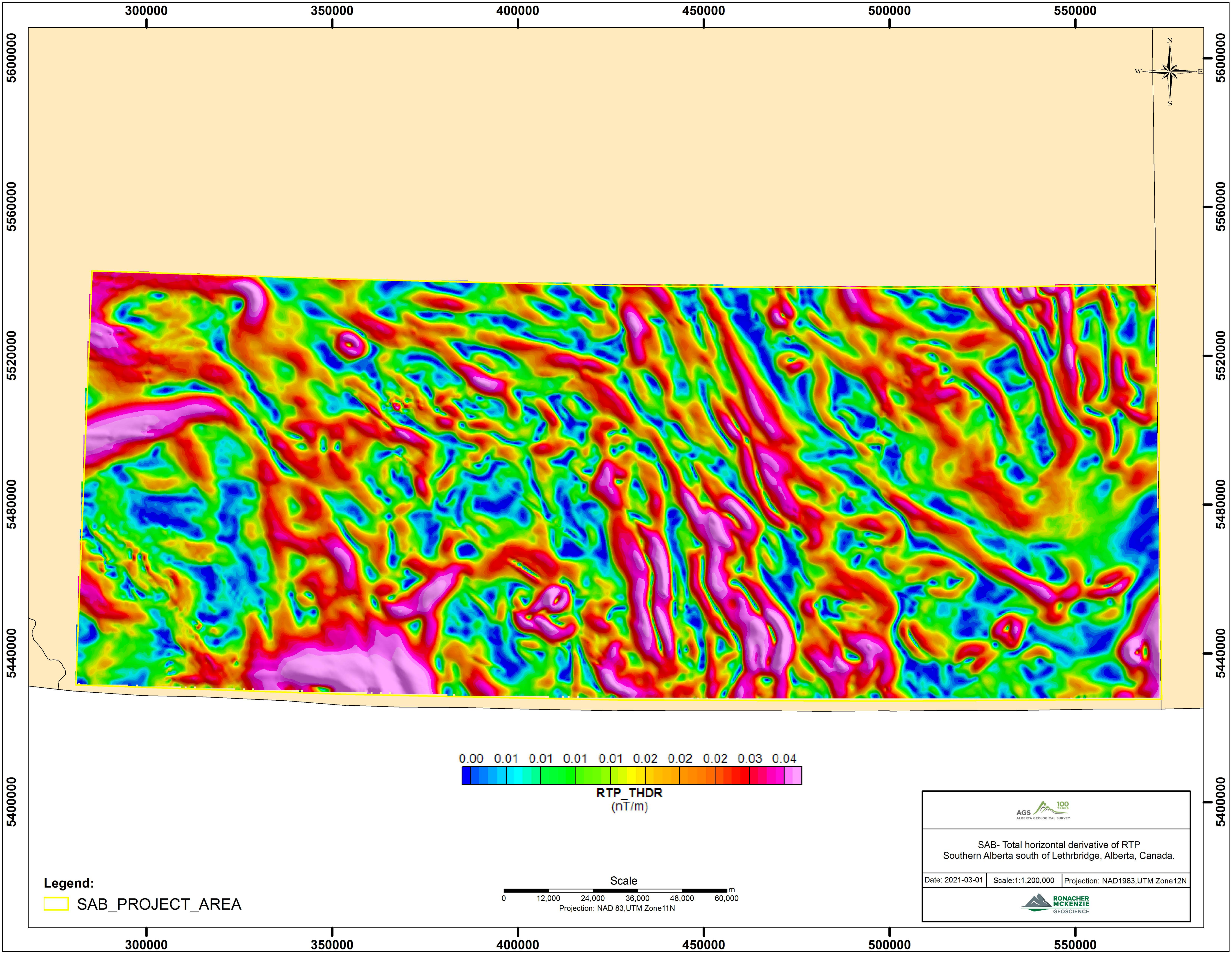
350000
400000
450000
500000
550000
5600000
5560000
5520000
5480000
5440000
5400000
N
S
W
E
-0.05 -0.03 -0.02 -0.01 -0.01 -0.01 -0.00 0.00 0.01 0.01 0.01 0.02 0.03
RTP_VD1_BW
(nT/m)
Legend:
SAB_PROJECT_AREA
Scale
0 12,000 24,000 36,000 48,000 60,000 m
Projection: NAD 83,UTM Zone11N
AGS ALBERTA GEOLOGICAL SURVEY 100 YEARS
SAB- First vertical derivative of RTP- Black and white
Southern Alberta south of Lethrbridge, Alberta, Canada.
Date: 2021-03-01
Scale:1:1,200,000
Projection: NAD1983,UTM Zone12N
RONACHER MCKENZIE GEOSCIENCE

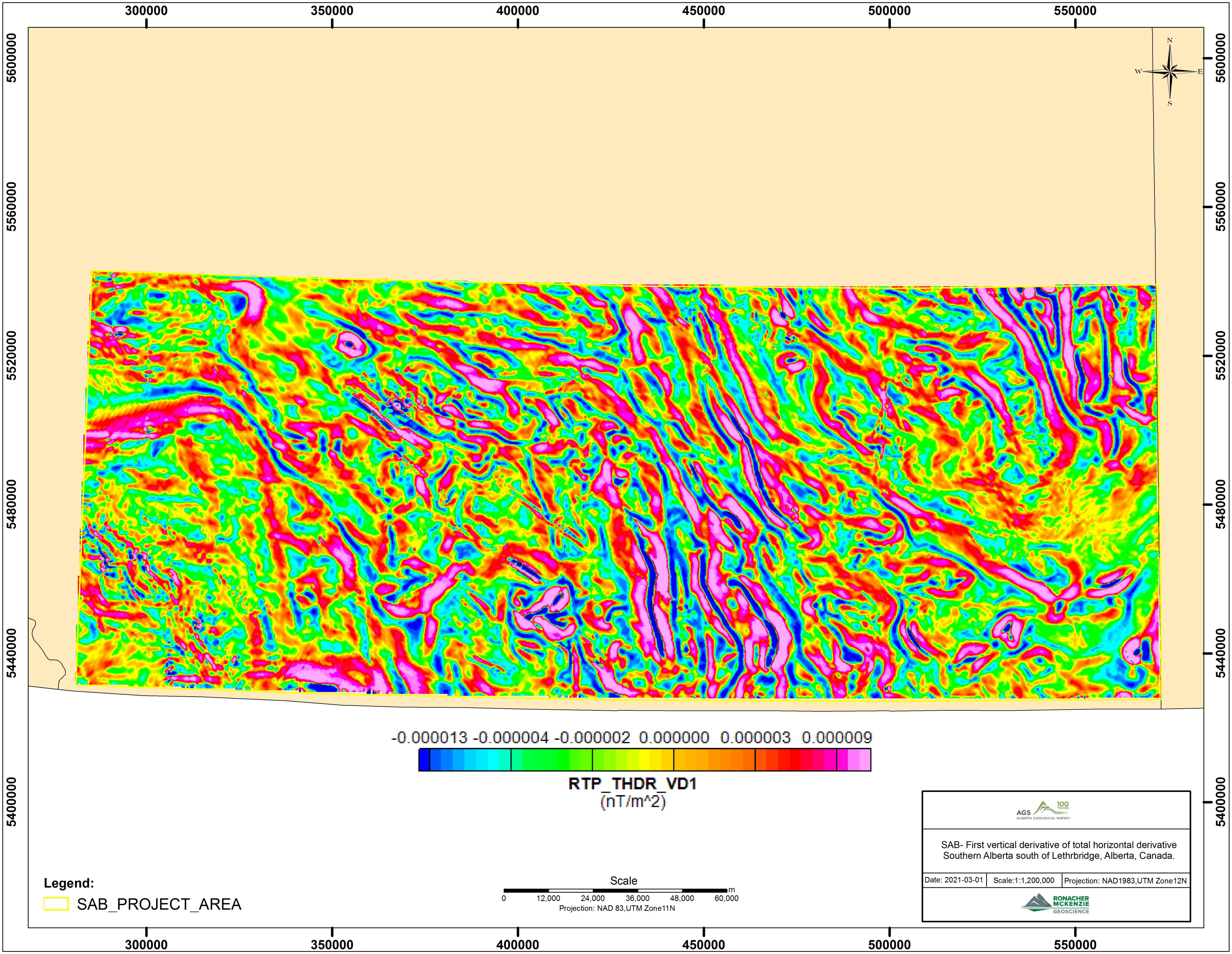


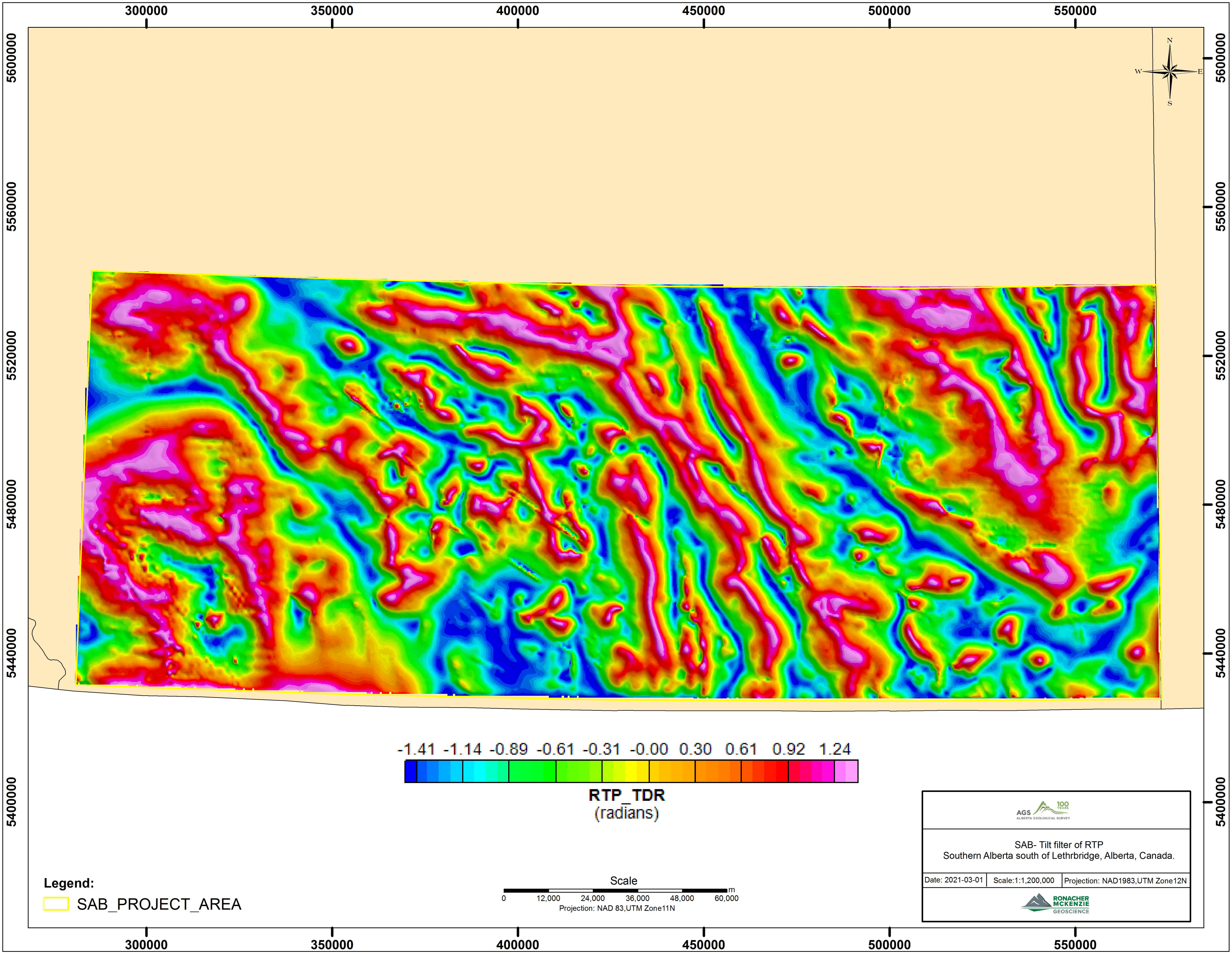
300000
350000
400000
450000
500000
550000
5600000
5560000
5520000
5480000
5440000
5400000
N
S
W
E
-0.000027 -0.000008 -0.000004 -0.000001 0.000001 0.000005 0.000011
VD2
(nT/m^2)
AGS 100 YEARS
ALBERTA GEOLOGICAL SURVEY
SAB- Second vertical derivative of RTP- Black and white
Southern Alberta south of Lethrbridge, Alberta, Canada.
Date: 2021-03-01
Scale:1:1,200,000
Projection: NAD1983,UTM Zone12N
RONACHER MCKENZIE GEOSCIENCE
Legend:
SAB_PROJECT_AREA
Scale
0 12,000 24,000 36,000 48,000 60,000 m
Projection: NAD 83,UTM Zone11N

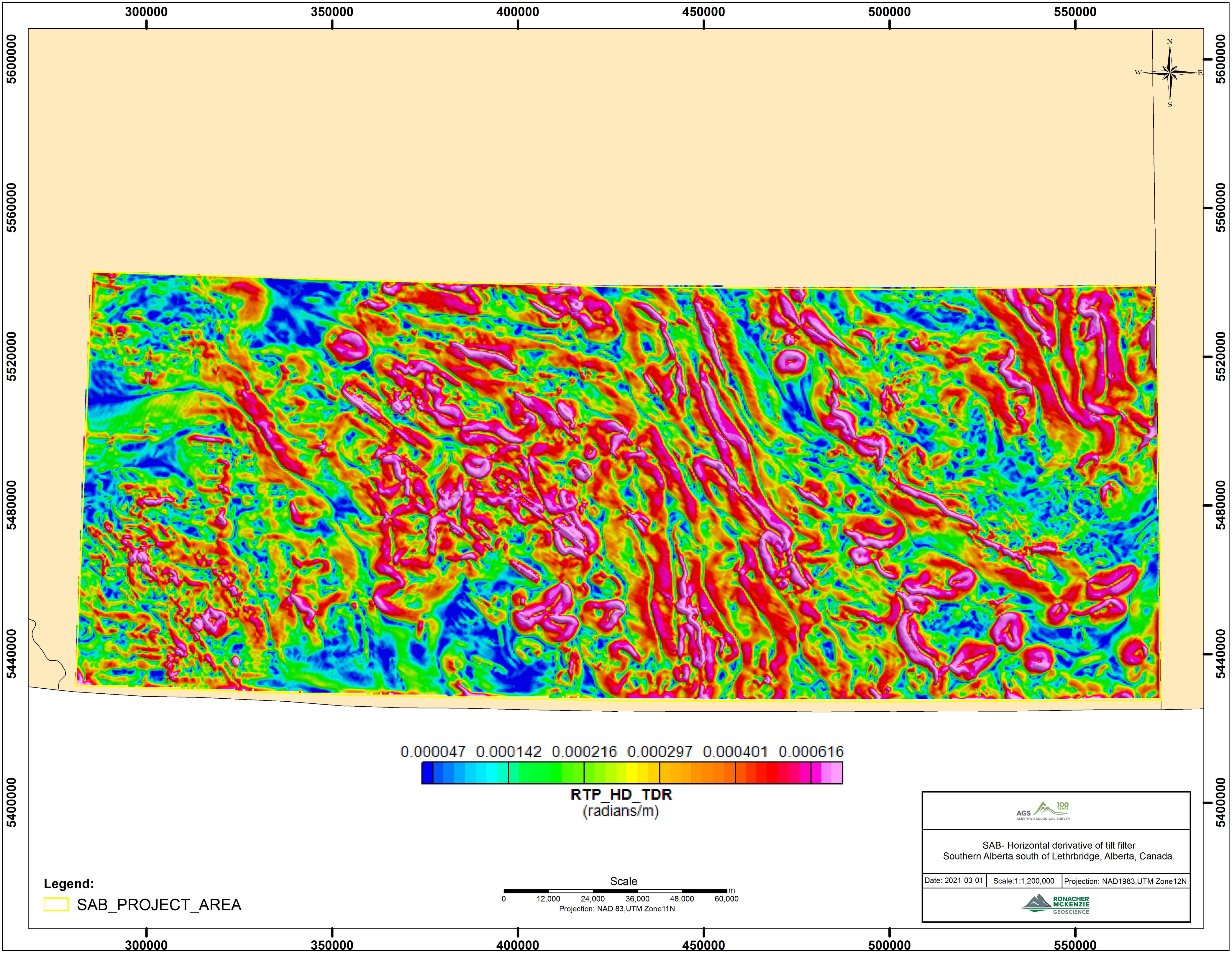


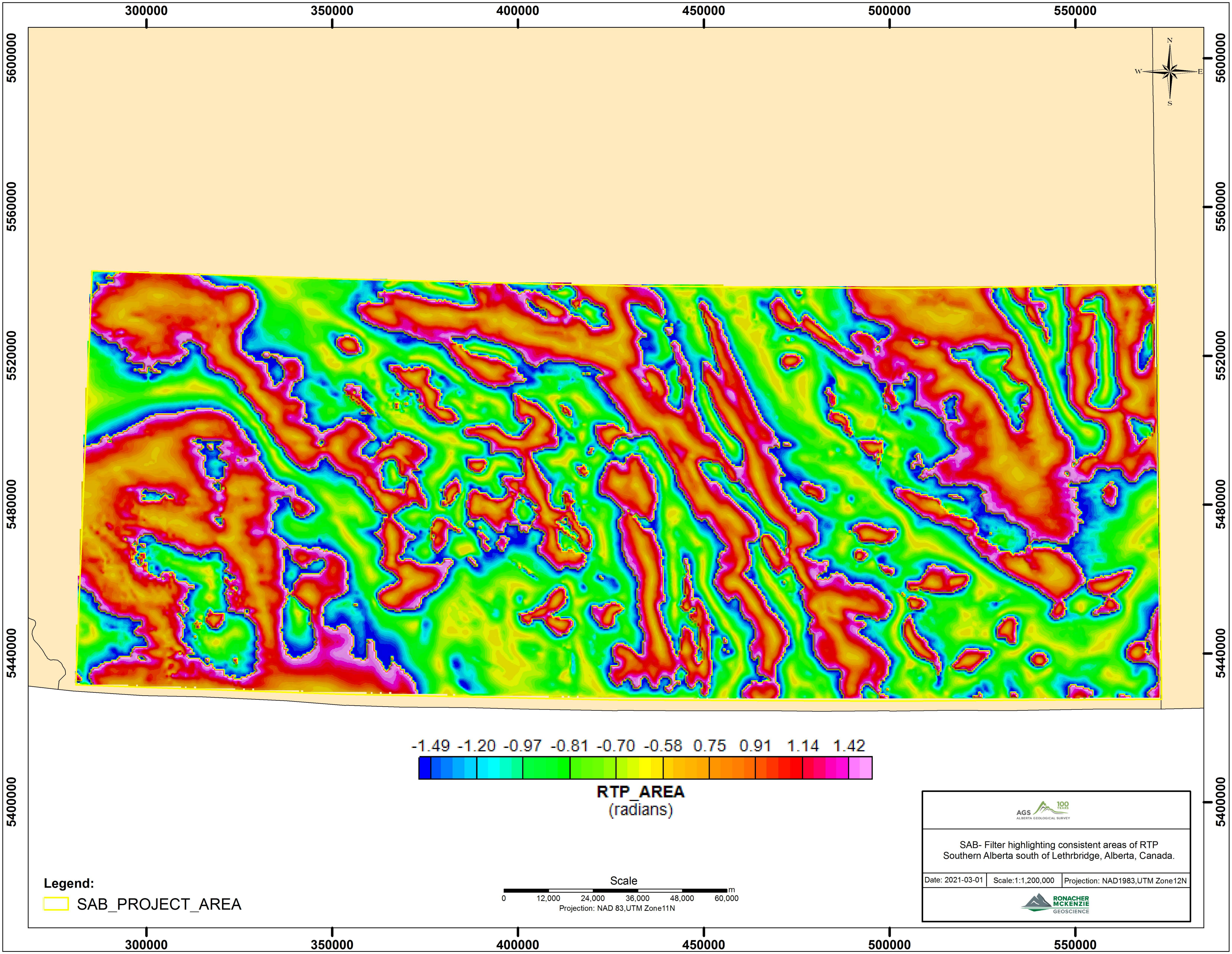
300000
350000
400000
450000
500000
550000
5600000
5560000
5520000
5480000
5440000
5400000
N
E
S
W
-300.41 -119.11 -45.09 -0.31 35.31 75.90 119.64 180.32 285.68 461.99
RTP
(nT)
AGS
ALBERTA GEOLOGICAL SURVEY
100 YEARS
SAB- Reduction to pole - Black and white
Southern Alberta south of Lethrbridge, Alberta, Canada.
Date: 2021-03-01
Scale:1:1,200,000
Projection: NAD1983,UTM Zone12N
RONACHER MCKENZIE GEOSCIENCE
Legend:
SAB_PROJECT_AREA
Scale
0
12,000
24,000
36,000
48,000
60,000
m
Projection: NAD 83,UTM Zone11N


300000
350000
400000
450000
500000
550000
5600000
5560000
5520000
5480000
5440000
5400000
N
S
W
E
0.00 0.01 0.01 0.01 0.01 0.02 0.02 0.02 0.03 0.04
RTP_THDR
(nT/m)
Legend:
SAB_PROJECT_AREA
Scale
0 12,000 24,000 36,000 48,000 60,000 m
Projection: NAD 83,UTM Zone11N
AGS
ALBERTA GEOLOGICAL SURVEY
100 YEARS
SAB- Total horizontal derivative of RTP
Southern Alberta south of Lethrbridge, Alberta, Canada.
Date: 2021-03-01
Scale:1:1,200,000
Projection: NAD1983,UTM Zone12N
RONACHER MCKENZIE GEOSCIENCE

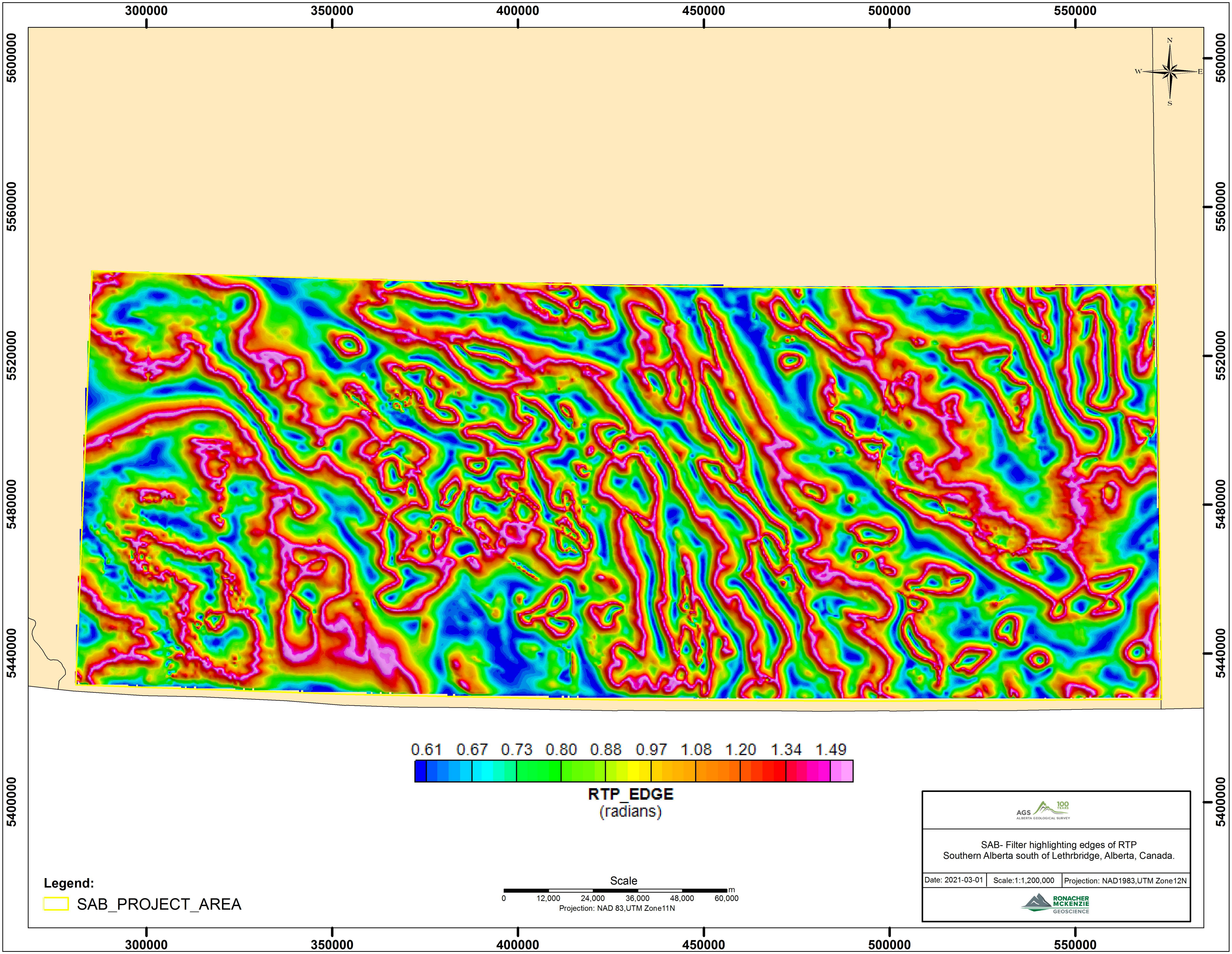

300000
350000
400000
450000
500000
550000
5600000
5560000
5520000
5480000
5440000
5400000
N
S
W
E
-0.000013 -0.000004 -0.000002 0.000000 0.000003 0.000009
RTP_THDR_VD1
(nT/m^2)
AGS
ALBERTA GEOLOGICAL SURVEY
100 YEARS
SAB- First vertical derivative of total horizontal derivative
Southern Alberta south of Lethrbridge, Alberta, Canada.
Date: 2021-03-01
Scale:1:1,200,000
Projection: NAD1983,UTM Zone12N
RONACHER MCKENZIE GEOSCIENCE
Legend:
SAB_PROJECT_AREA
Scale
0
12,000
24,000
36,000
48,000
60,000
m
Projection: NAD 83,UTM Zone11N


300000
350000
400000
450000
500000
550000
5600000
5560000
5520000
5480000
5440000
5400000
N
W
E
S
-1.41 -1.14 -0.89 -0.61 -0.31 -0.00 0.30 0.61 0.92 1.24
RTP_TDR
(radians)
AGS ALBERTA GEOLOGICAL SURVEY
SAB- Tilt filter of RTP
Southern Alberta south of Lethrbridge, Alberta, Canada.
Date: 2021-03-01
Scale:1:1,200,000
Projection: NAD1983,UTM Zone12N
RONACHER MCKENZIE GEOSCIENCE
Legend:
SAB_PROJECT_AREA
Scale
0 12,000 24,000 36,000 48,000 60,000
m
Projection: NAD 83,UTM Zone11N

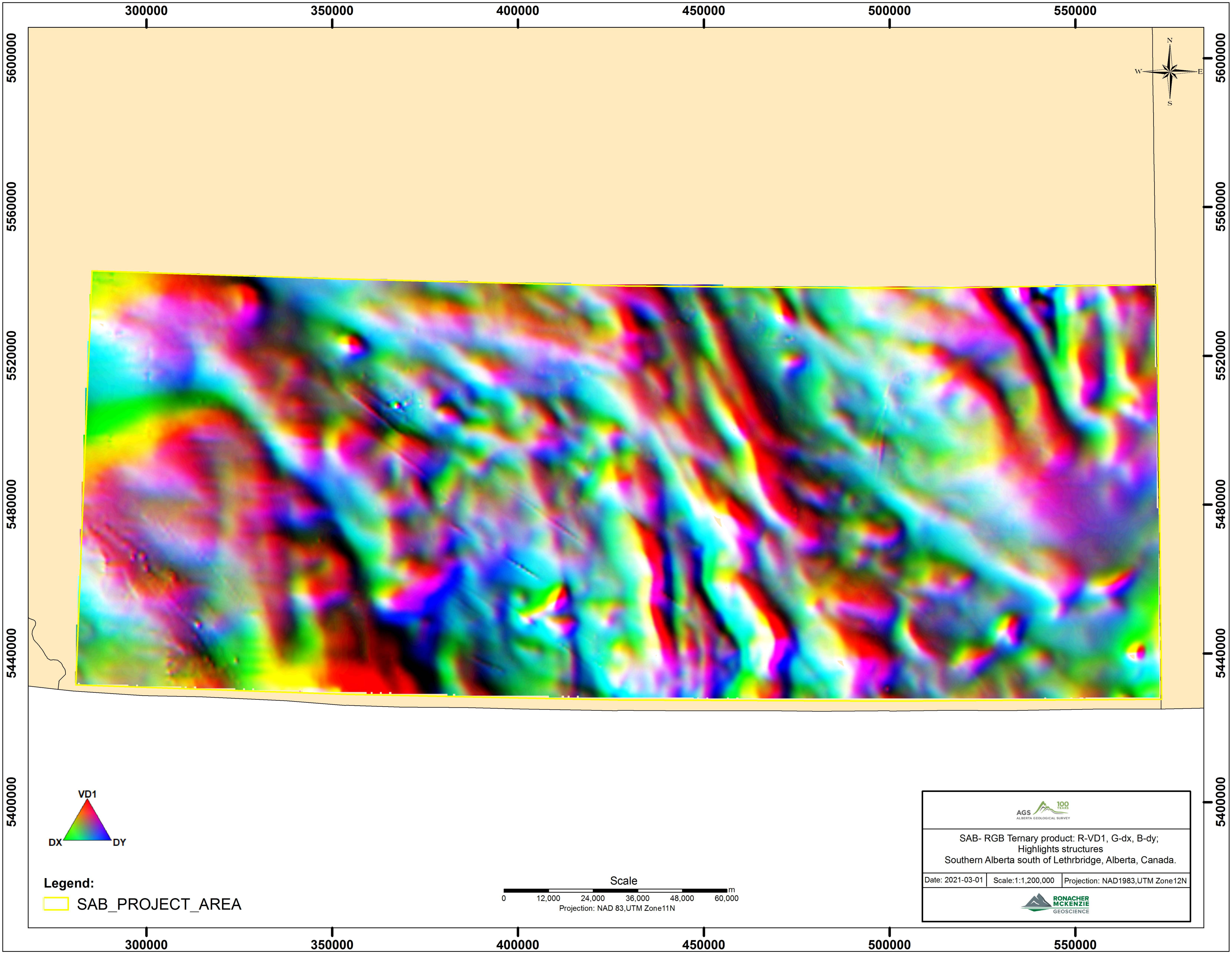

300000
350000
400000
450000
500000
550000
5600000
5560000
5520000
5480000
5440000
5400000
N
S
W
E
0.000047 0.000142 0.000216 0.000297 0.000401 0.000616
RTP_HD_TDR
(radians/m)
AGS
ALBERTA GEOLOGICAL SURVEY
100 YEARS
SAB- Horizontal derivative of tilt filter
Southern Alberta south of Lethrbridge, Alberta, Canada.
Date: 2021-03-01
Scale:1:1,200,000
Projection: NAD1983,UTM Zone12N
RONACHER MCKENZIE GEOSCIENCE
Legend:
SAB_PROJECT_AREA
Scale
0 12,000 24,000 36,000 48,000 60,000 m
Projection: NAD 83,UTM Zone11N



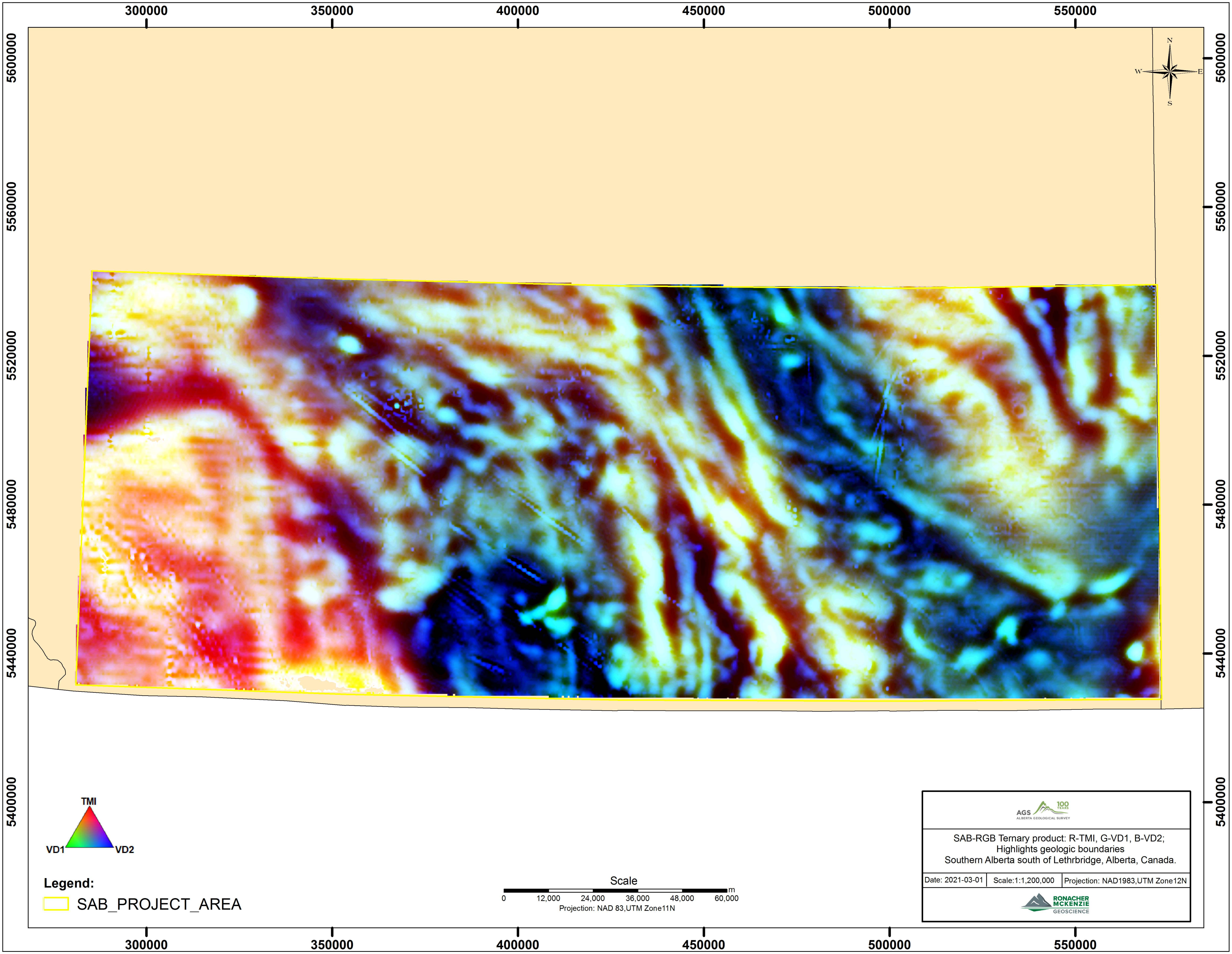
300000
350000
400000
450000
500000
550000
5600000
5560000
5520000
5480000
5440000
5400000
N
W
E
S
-1.49 -1.20 -0.97 -0.81 -0.70 -0.58 0.75 0.91 1.14 1.42
RTP_AREA
(radians)
Legend:
SAB_PROJECT_AREA
Scale
0 12,000 24,000 36,000 48,000 60,000 m
Projection: NAD 83,UTM Zone11N
AGS ALBERTA GEOLOGICAL SURVEY 100 YEARS
SAB- Filter highlighting consistent areas of RTP
Southern Alberta south of Lethrbridge, Alberta, Canada.
Date: 2021-03-01
Scale:1:1,200,000
Projection: NAD1983,UTM Zone12N
RONACHER MCKENZIE GEOSCIENCE

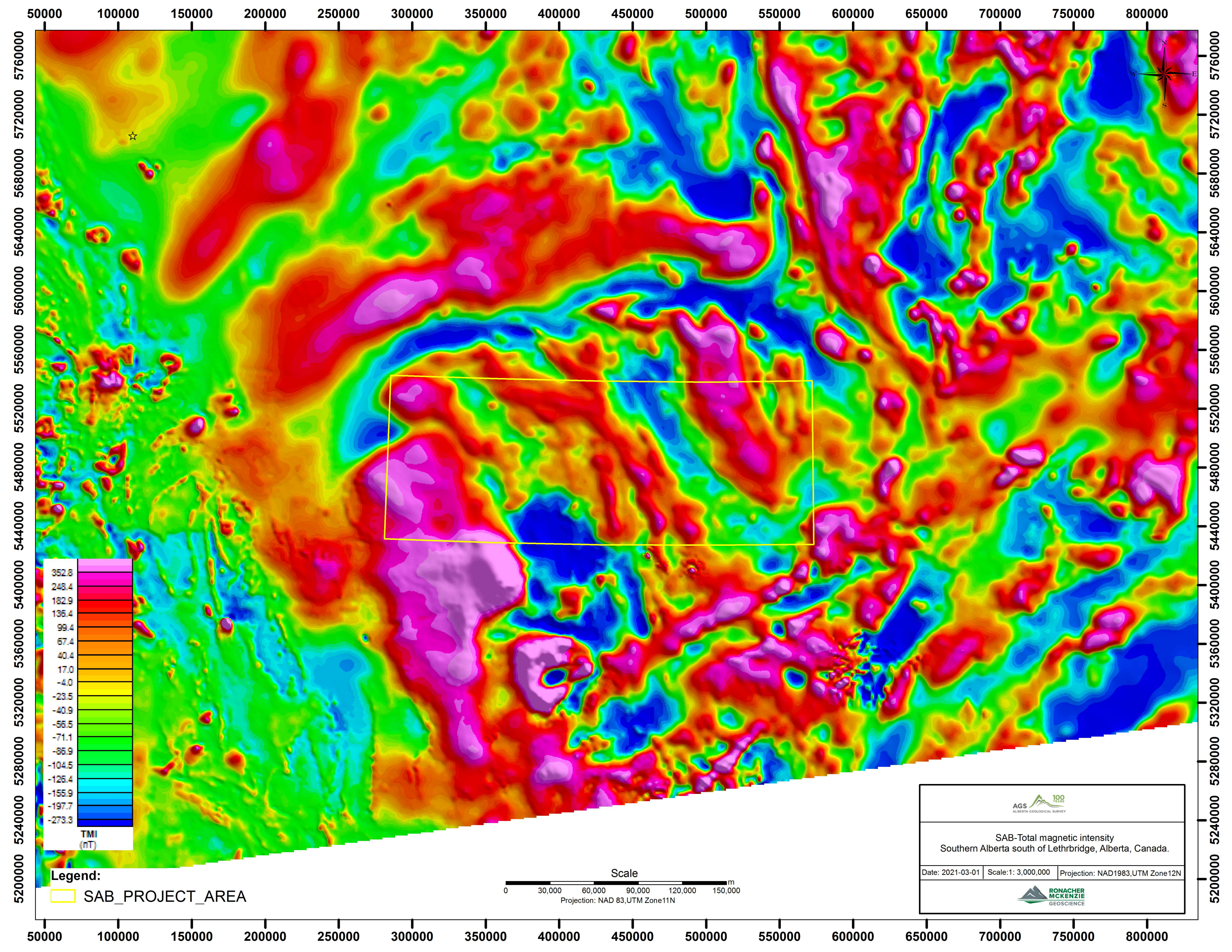


300000
350000
400000
450000
500000
550000
5600000
5560000
5520000
5480000
5440000
5400000
N
S
E
W
0.61 0.67 0.73 0.80 0.88 0.97 1.08 1.20 1.34 1.49
RTP_EDGE
(radians)
AGS ALBERTA GEOLOGICAL SURVEY
100 YEARS
SAB- Filter highlighting edges of RTP
Southern Alberta south of Lethrbridge, Alberta, Canada.
Date: 2021-03-01
Scale:1:1,200,000
Projection: NAD1983,UTM Zone12N
RONACHER MCKENZIE GEOSCIENCE
Legend:
SAB_PROJECT_AREA
Scale
0 12,000 24,000 36,000 48,000 60,000 m
Projection: NAD 83,UTM Zone11N

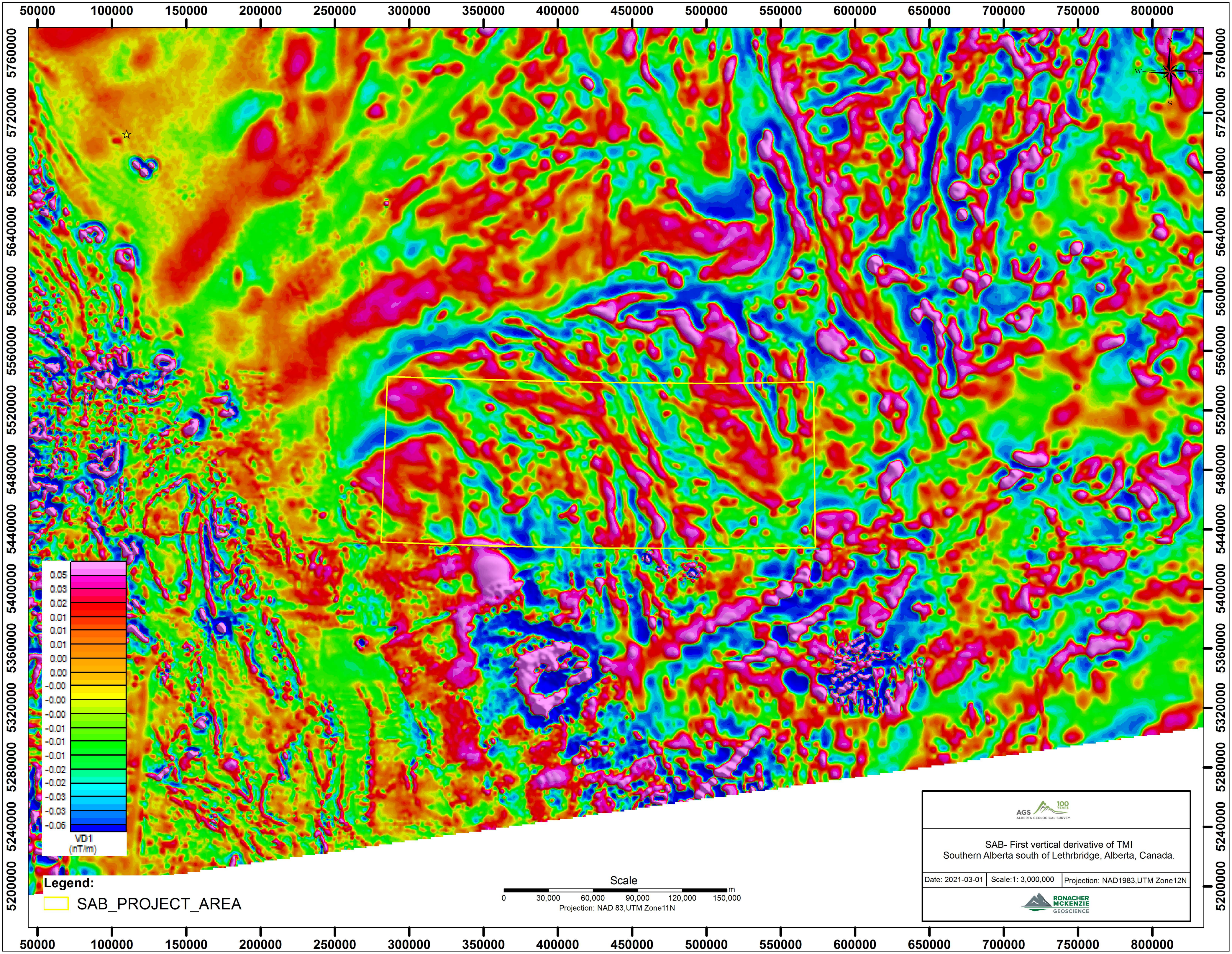


300000
350000
400000
450000
500000
550000
5600000
5560000
5520000
5480000
5440000
5400000
N
S
W
E
VD1
DX
DY
Legend:
SAB_PROJECT_AREA
Scale
0
12,000
24,000
36,000
48,000
60,000
m
Projection: NAD 83,UTM Zone11N
AGS
SAB- RGB Ternary product: R-VD1, G-dx, B-dy;
Highlights structures
Southern Alberta south of Lethrbridge, Alberta, Canada.
Date: 2021-03-01
Scale:1:1,200,000
Projection: NAD1983,UTM Zone12N
RONACHER
MCKENZIE
GEOSCIENCE

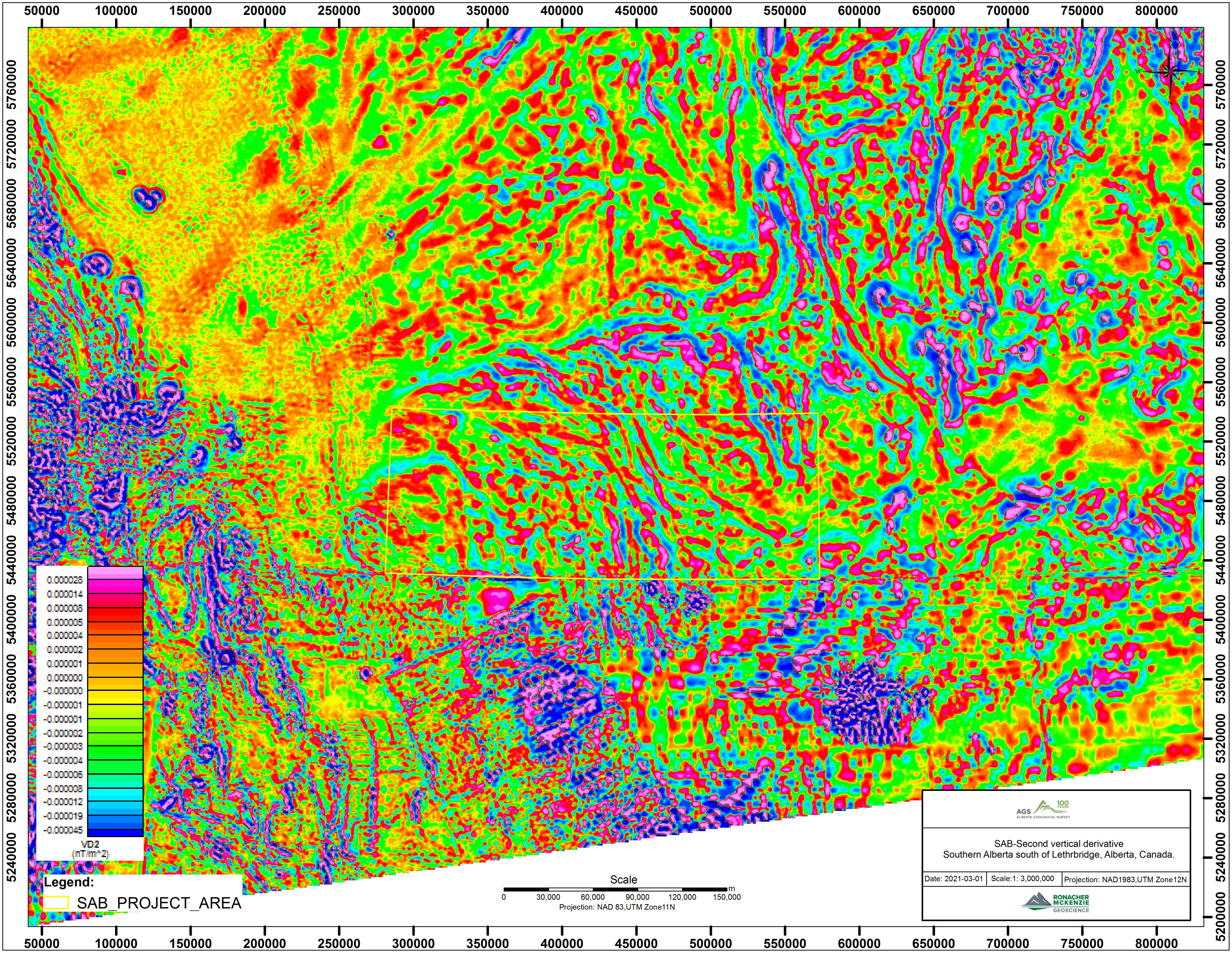

300000
350000
400000
450000
500000
550000
5600000
5560000
5520000
5480000
5440000
5400000
N
S
E
W
TMI
VD1
VD2
Legend:
SAB_PROJECT_AREA
Scale
m
0
12,000
24,000
36,000
48,000
60,000
Projection: NAD 83,UTM Zone11N
AGS
100 YEARS
ALBERTA GEOLOGICAL SURVEY
SAB-RGB Ternary product: R-TMI, G-VD1, B-VD2;
Highlights geologic boundaries
Southern Alberta south of Lethrbridge, Alberta, Canada.
Date: 2021-03-01
Scale:1:1,200,000
Projection: NAD1983,UTM Zone12N
RONACHER MCKENZIE GEOSCIENCE



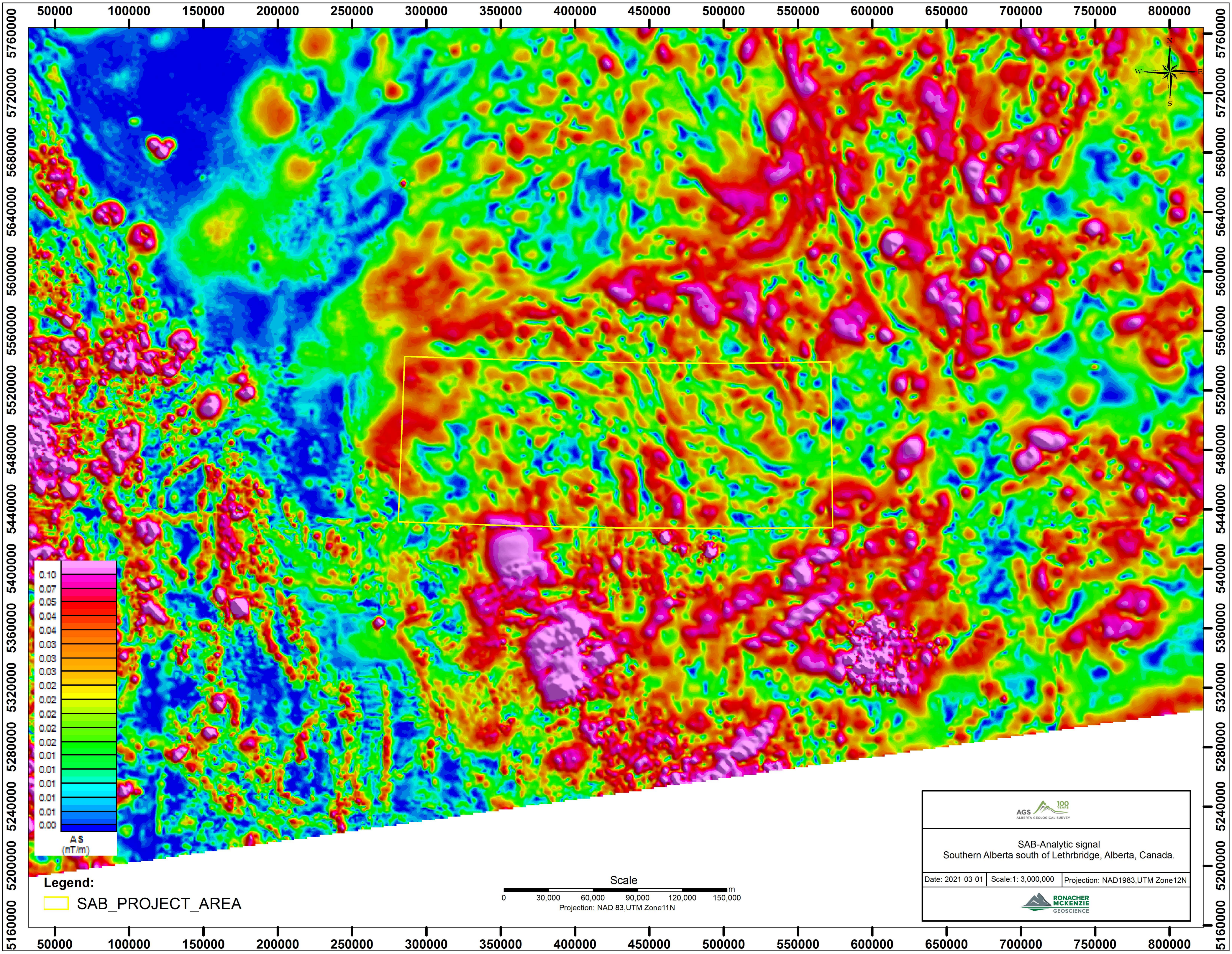
50000
100000
150000
200000
250000
300000
350000
400000
450000
500000
550000
600000
650000
700000
750000
800000
5760000
5720000
5680000
5640000
5600000
5560000
5520000
5480000
5440000
5400000
5360000
5320000
5280000
5240000
5200000
N
S
E
W
352.8
248.4
182.9
136.4
99.4
67.4
40.4
17.0
-4.0
-23.5
-40.9
-56.5
-71.1
-86.9
-104.5
-126.4
-155.9
-197.7
-273.3
TMI
(nT)
Legend:
SAB_PROJECT_AREA
Scale
m
0
30,000
60,000
90,000
120,000
150,000
Projection: NAD 83,UTM Zone11N
AGS
100 YEARS
ALBERTA GEOLOGICAL SURVEY
SAB-Total magnetic intensity
Southern Alberta south of Lethrbridge, Alberta, Canada.
Date: 2021-03-01
Scale:1: 3,000,000
Projection: NAD1983,UTM Zone12N
RONACHER MCKENZIE GEOSCIENCE



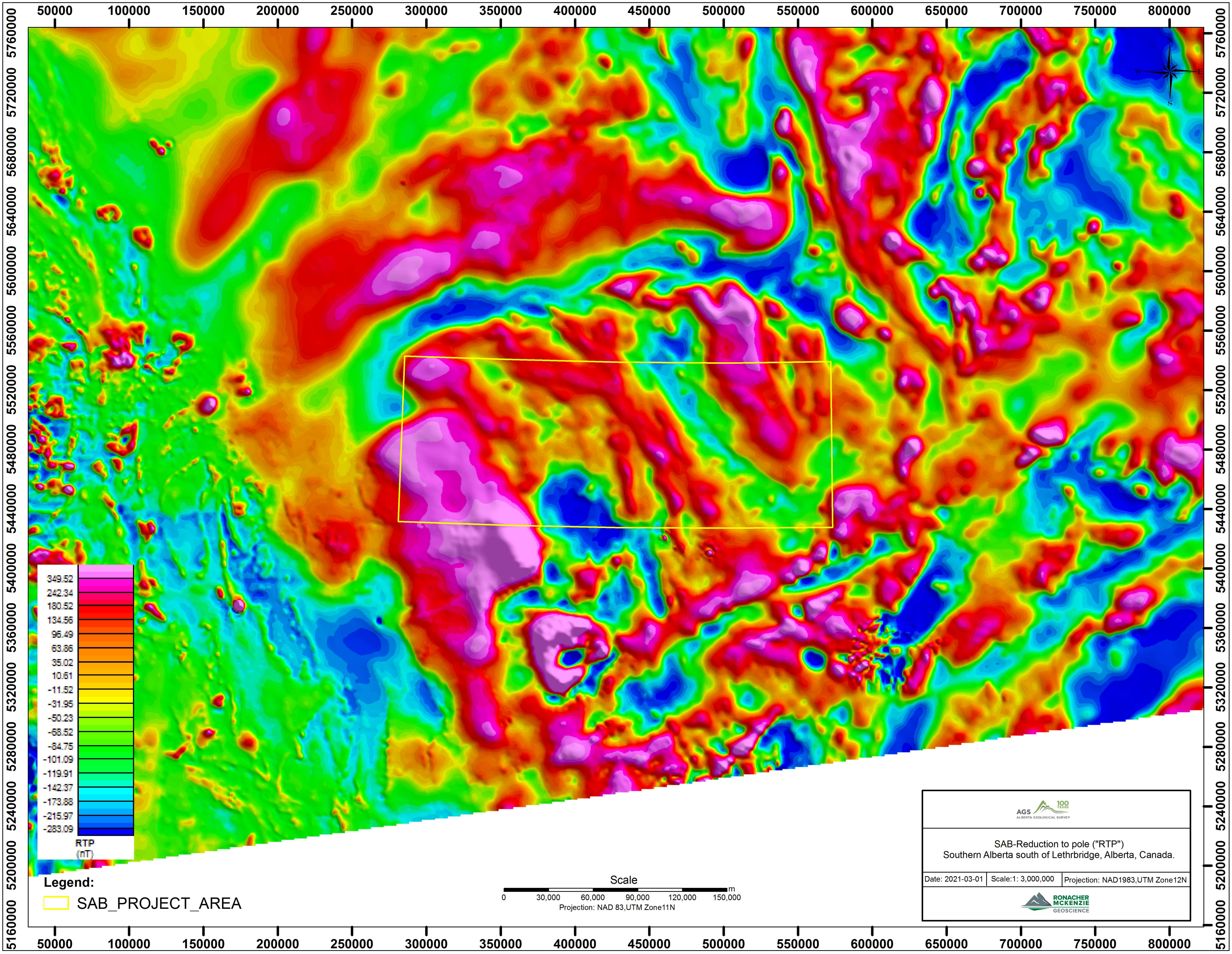
VD1
(nT/m)
Legend:
SAB_PROJECT_AREA
Scale
0 30,000 60,000 90,000 120,000 150,000 m
Projection: NAD 83,UTM Zone11N
AGS ALBERTA GEOLOGICAL SURVEY
SAB- First vertical derivative of TMI
Southern Alberta south of Lethrbridge, Alberta, Canada.
Date: 2021-03-01
Scale:1: 3,000,000
Projection: NAD1983,UTM Zone12N
RONACHER MCKENZIE GEOSCIENCE



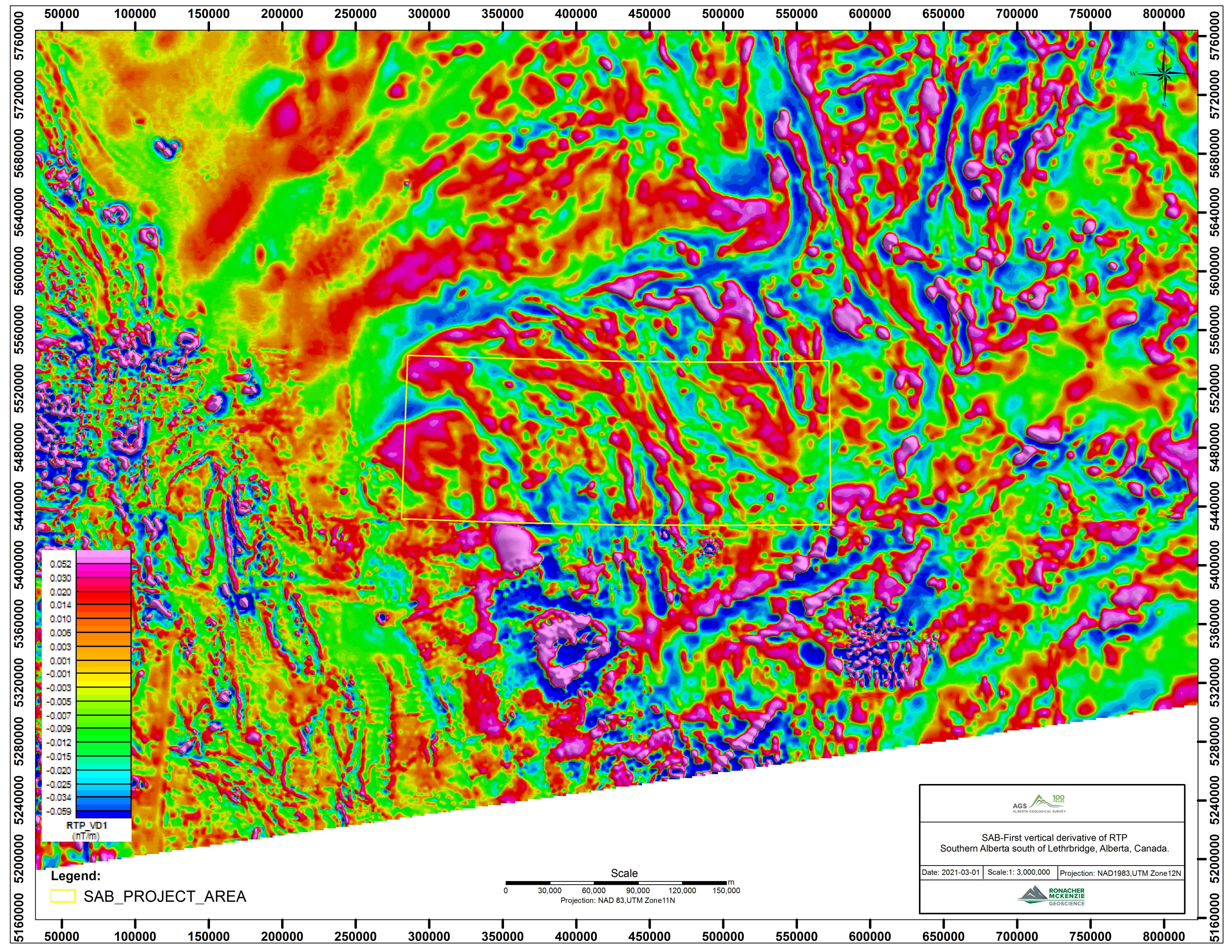
50000
100000
150000
200000
250000
300000
350000
400000
450000
500000
550000
600000
650000
700000
750000
800000
5760000
5720000
5680000
5640000
5600000
5560000
5520000
5480000
5440000
5400000
5360000
5320000
5280000
5240000
5200000
0.000028
0.000014
0.000008
0.000005
0.000004
0.000002
0.000001
0.000000
-0.000000
-0.000001
-0.000001
-0.000002
-0.000003
-0.000004
-0.000005
-0.000008
-0.000012
-0.000019
-0.000045
VD2
(nT/m^2)
Legend:
SAB_PROJECT_AREA
Scale
m
0
30,000
60,000
90,000
120,000
150,000
Projection: NAD 83,UTM Zone11N
AGS
ALBERTA GEOLOGICAL SURVEY
100 YEARS
SAB-Second vertical derivative
Southern Alberta south of Lethrbridge, Alberta, Canada.
Date: 2021-03-01
Scale:1: 3,000,000
Projection: NAD1983,UTM Zone12N
RONACHER MCKENZIE
GEOSCIENCE



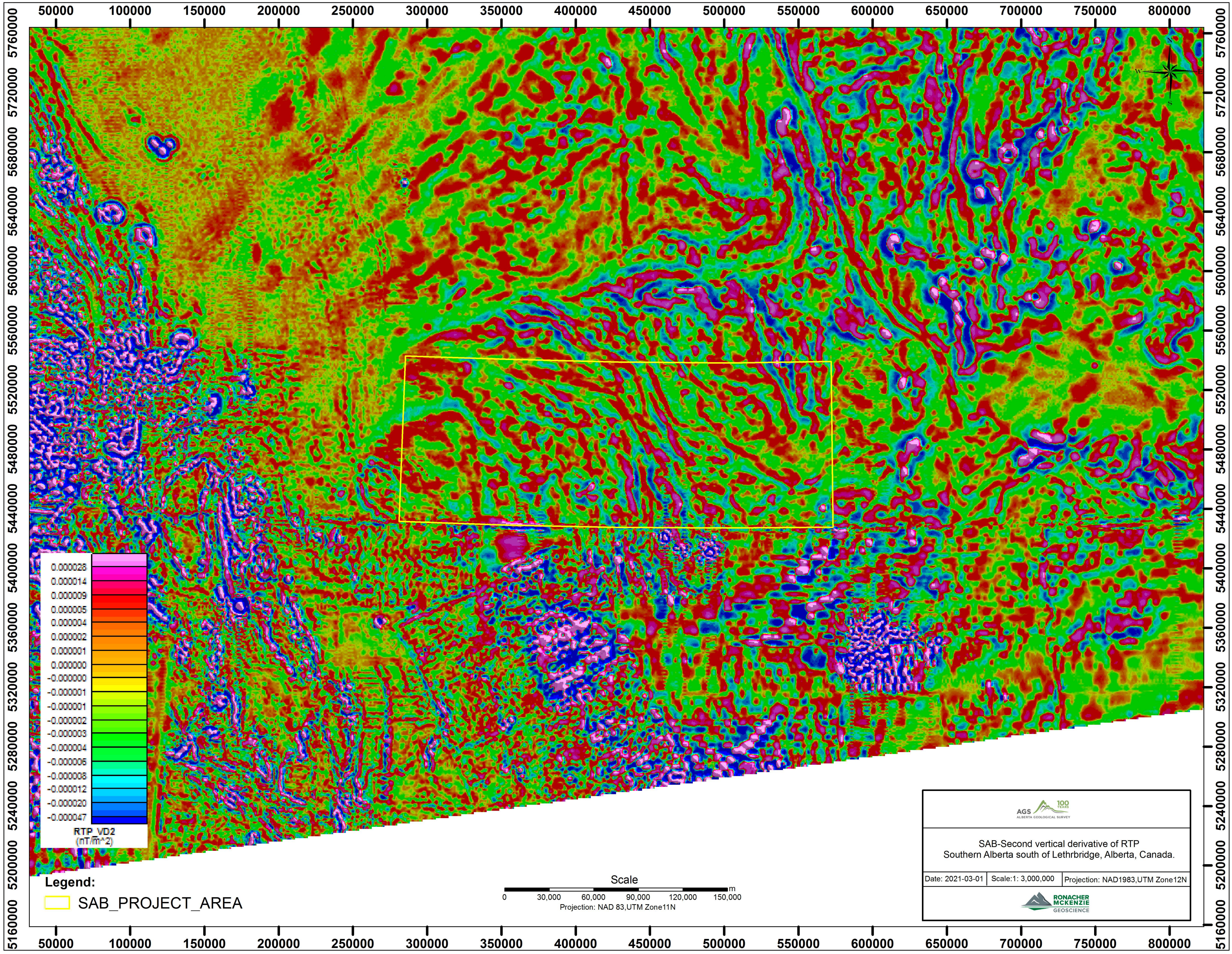
0.10
0.07
0.05
0.04
0.04
0.04
0.03
0.03
0.03
0.02
0.02
0.02
0.02
0.02
0.01
0.01
0.01
0.01
0.01
0.00
AS
(nT/m)
Legend:
SAB_PROJECT_AREA
Scale
0
30,000
60,000
90,000
120,000
150,000
m
Projection: NAD 83,UTM Zone11N
AGS
ALBERTA GEOLOGICAL SURVEY
SAB-Analytic signal
Southern Alberta south of Lethrbridge, Alberta, Canada.
Date: 2021-03-01
Scale:1: 3,000,000
Projection: NAD1983,UTM Zone12N
RONACHER MCKENZIE GEOSCIENCE

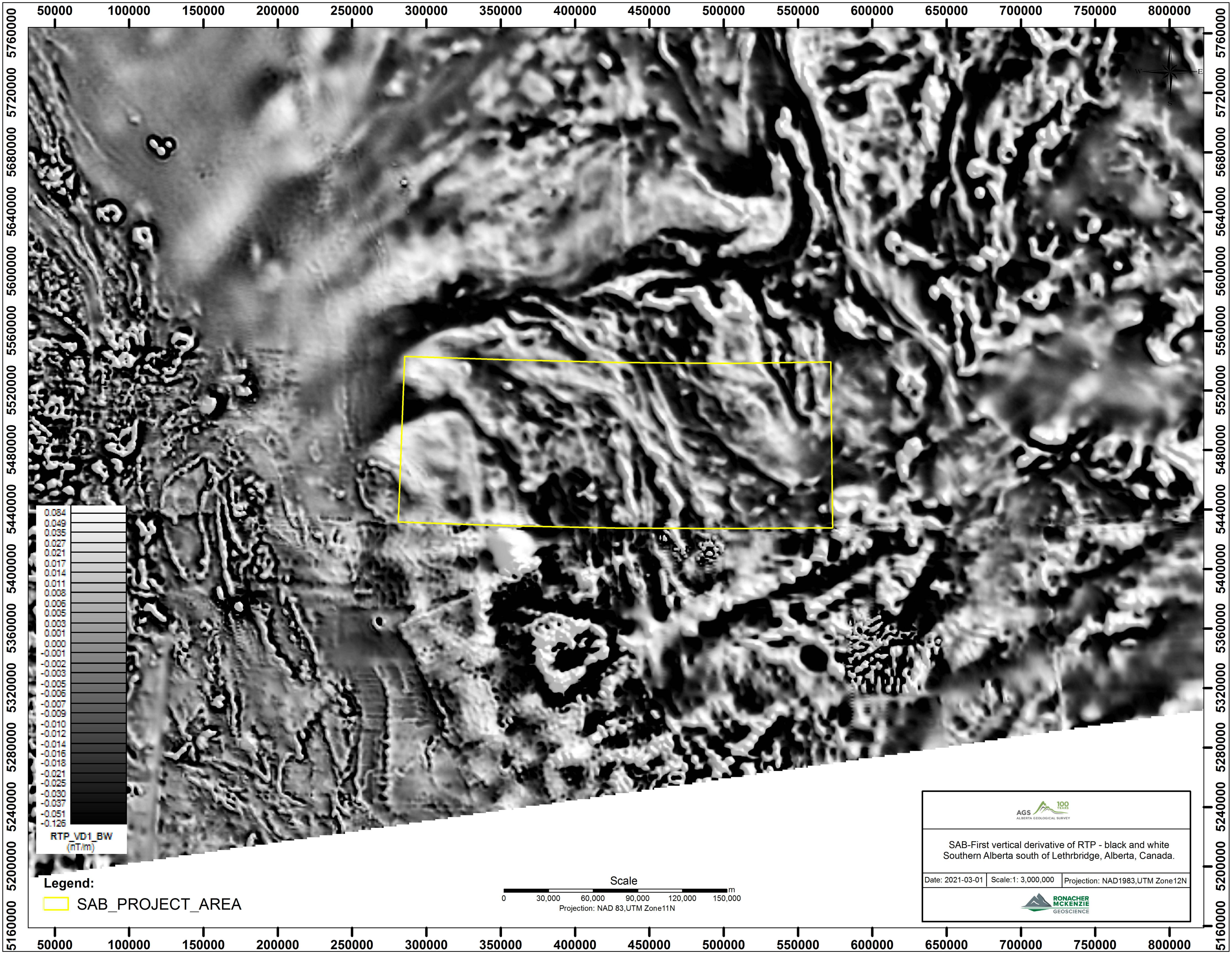


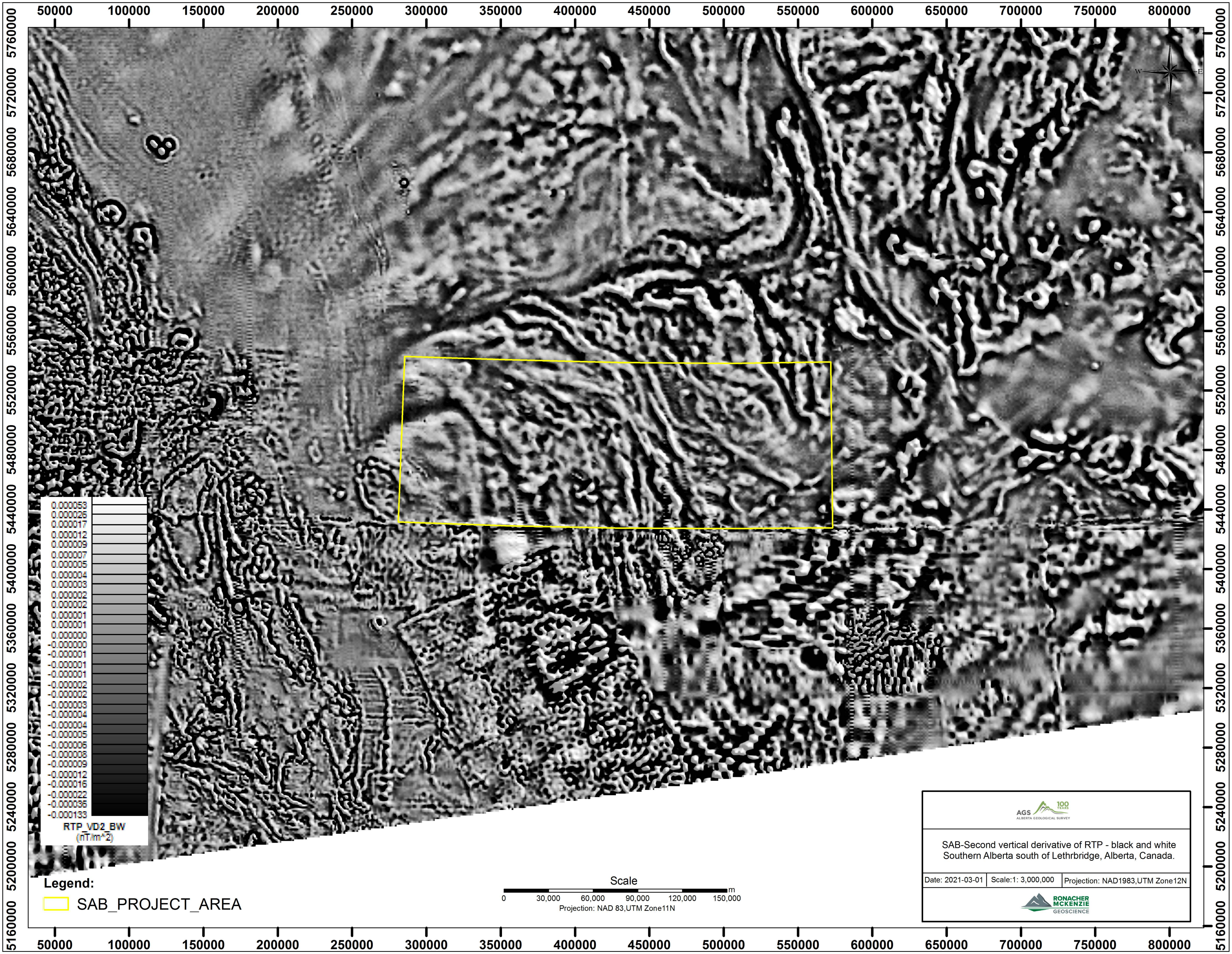
349.52
242.34
180.52
134.56
96.49
63.86
35.02
10.61
-11.52
-31.95
-50.23
-68.52
-84.75
-101.09
-119.91
-142.37
-173.88
-215.97
-283.09
RTP
(nT)
Legend:
SAB_PROJECT_AREA
Scale
0
30,000
60,000
90,000
120,000
150,000
m
Projection: NAD 83,UTM Zone11N
AGS
ALBERTA GEOLOGICAL SURVEY
100 YEARS
SAB-Reduction to pole ("RTP")
Southern Alberta south of Lethrbridge, Alberta, Canada.
Date: 2021-03-01
Scale:1: 3,000,000
Projection: NAD1983,UTM Zone12N
RONACHER MCKENZIE GEOSCIENCE



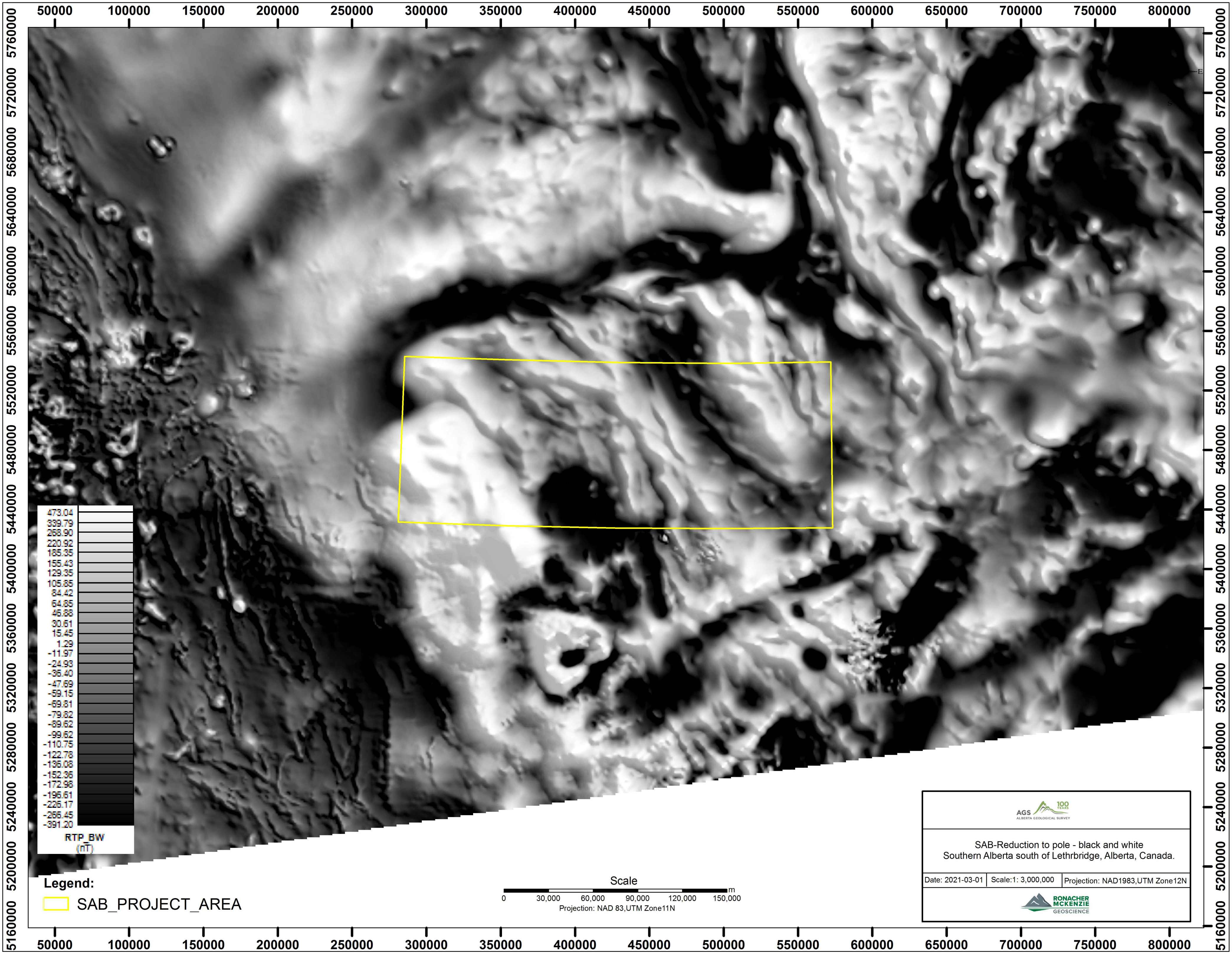
50000
100000
150000
200000
250000
300000
350000
400000
450000
500000
550000
600000
650000
700000
750000
800000
5760000
5720000
5680000
5640000
5600000
5560000
5520000
5480000
5440000
5400000
5360000
5320000
5280000
5240000
5200000
5160000
W
E
S
0.052
0.030
0.020
0.014
0.010
0.006
0.003
0.001
-0.001
-0.003
-0.005
-0.007
-0.009
-0.012
-0.015
-0.020
-0.025
-0.034
-0.059
RTP_VD1
(nT/m)
Legend:
SAB_PROJECT_AREA
Scale
m
0
30,000
60,000
90,000
120,000
150,000
Projection: NAD 83,UTM Zone11N
AGS
ALBERTA GEOLOGICAL SURVEY
100 YEARS
SAB-First vertical derivative of RTP
Southern Alberta south of Lethrbridge, Alberta, Canada.
Date: 2021-03-01
Scale:1: 3,000,000
Projection: NAD1983,UTM Zone12N
RONACHER MCKENZIE GEOSCIENCE


50000
100000
150000
200000
250000
300000
350000
400000
450000
500000
550000
600000
650000
700000
750000
800000
5760000
5720000
5680000
5640000
5600000
5560000
5520000
5480000
5440000
5400000
5360000
5320000
5280000
5240000
5200000
5160000
0.000028
0.000014
0.000009
0.000005
0.000004
0.000002
0.000001
0.000000
-0.000000
-0.000001
-0.000001
-0.000002
-0.000003
-0.000004
-0.000006
-0.000008
-0.000012
-0.000020
-0.000047
RTP_VD2
(nT/m^2)
Legend:
SAB_PROJECT_AREA
Scale
0
30,000
60,000
90,000
120,000
150,000
m
Projection: NAD 83,UTM Zone11N
AGS
100 YEARS
ALBERTA GEOLOGICAL SURVEY
SAB-Second vertical derivative of RTP
Southern Alberta south of Lethrbridge, Alberta, Canada.
Date: 2021-03-01
Scale:1: 3,000,000
Projection: NAD1983,UTM Zone12N
RONACHER MCKENZIE GEOSCIENCE

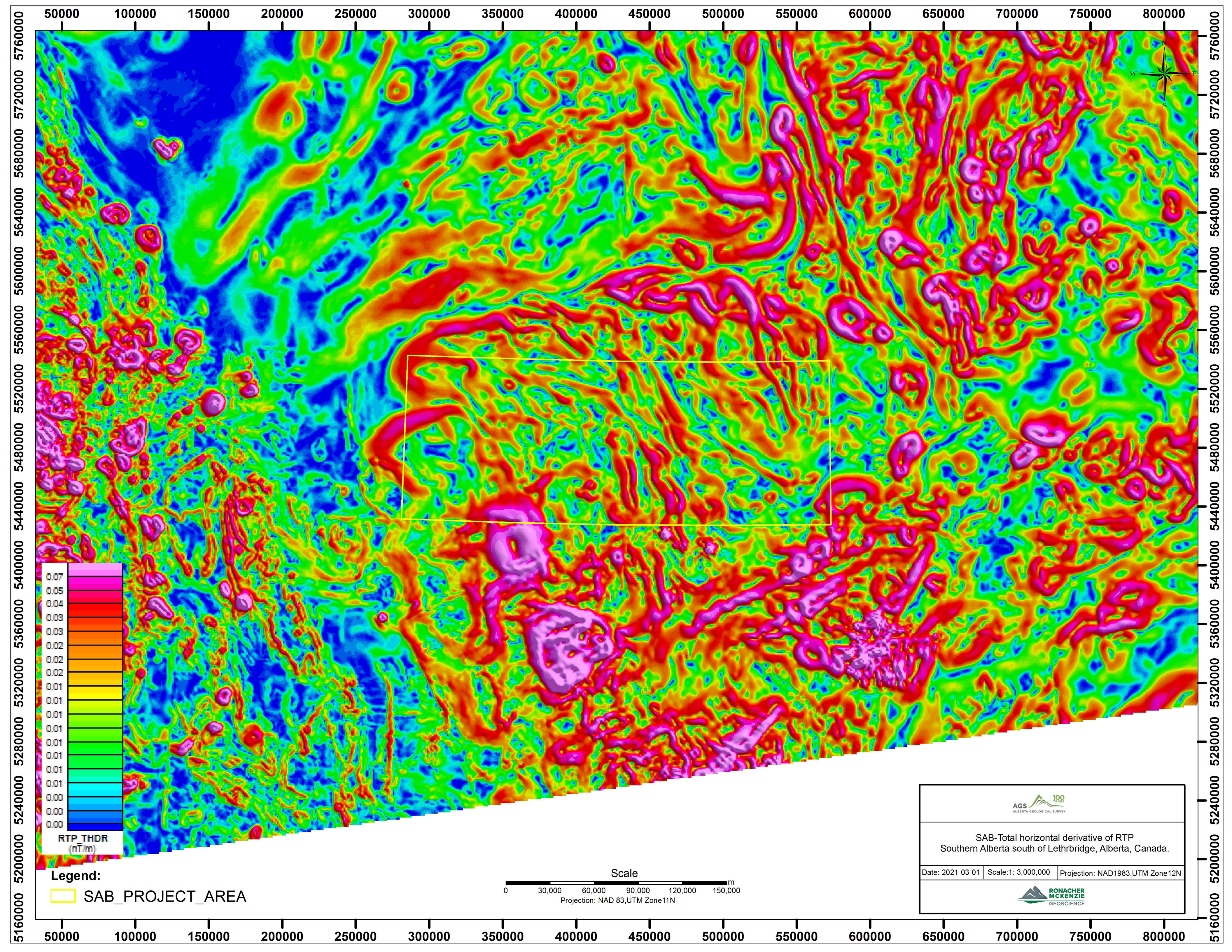

RTP_VD1_BW
(nT/m)
0.084
0.049
0.035
0.027
0.021
0.017
0.014
0.011
0.008
0.006
0.005
0.003
0.001
0.000
-0.001
-0.002
-0.003
-0.005
-0.006
-0.007
-0.009
-0.010
-0.012
-0.014
-0.016
-0.018
-0.021
-0.025
-0.030
-0.037
-0.051
-0.126
Legend:
SAB_PROJECT_AREA
Scale
0 30,000 60,000 90,000 120,000 150,000 m
Projection: NAD 83,UTM Zone11N
AGS ALBERTA GEOLOGICAL SURVEY
100 YEARS
SAB-First vertical derivative of RTP - black and white
Southern Alberta south of Lethrbridge, Alberta, Canada.
Date: 2021-03-01
Scale:1: 3,000,000
Projection: NAD1983,UTM Zone12N
RONACHER MCKENZIE GEOSCIENCE
50000 100000 150000 200000 250000 300000 350000 400000 450000 500000 550000 600000 650000 700000 750000 800000
5160000 5200000 5240000 5280000 5320000 5360000 5400000 5440000 5480000 5520000 5560000 5600000 5640000 5680000 5720000 5760000

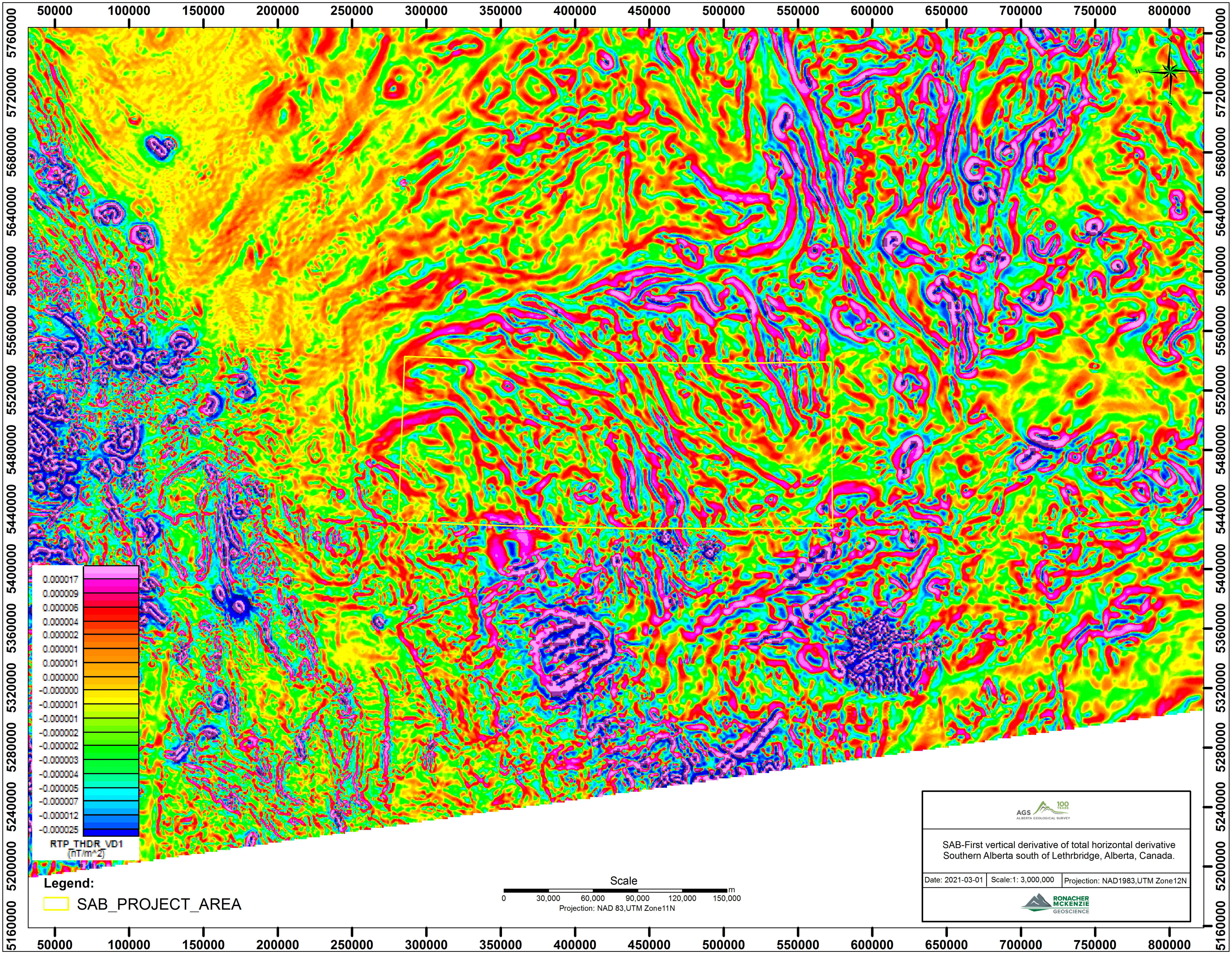


0.000053
0.000026
0.000017
0.000012
0.000009
0.000007
0.000005
0.000004
0.000003
0.000002
0.000002
0.000001
0.000001
0.000000
-0.000000
-0.000001
-0.000001
-0.000001
-0.000002
-0.000002
-0.000003
-0.000004
-0.000004
-0.000005
-0.000006
-0.000008
-0.000009
-0.000012
-0.000016
-0.000022
-0.000036
-0.000133
RTP_VD2_BW
(nT/m^2)
Legend:
SAB_PROJECT_AREA
Scale
0
30,000
60,000
90,000
120,000
150,000
m
Projection: NAD 83,UTM Zone11N
AGS
100 YEARS
ALBERTA GEOLOGICAL SURVEY
SAB-Second vertical derivative of RTP - black and white
Southern Alberta south of Lethrbridge, Alberta, Canada.
Date: 2021-03-01
Scale:1: 3,000,000
Projection: NAD1983,UTM Zone12N
RONACHER MCKENZIE GEOSCIENCE

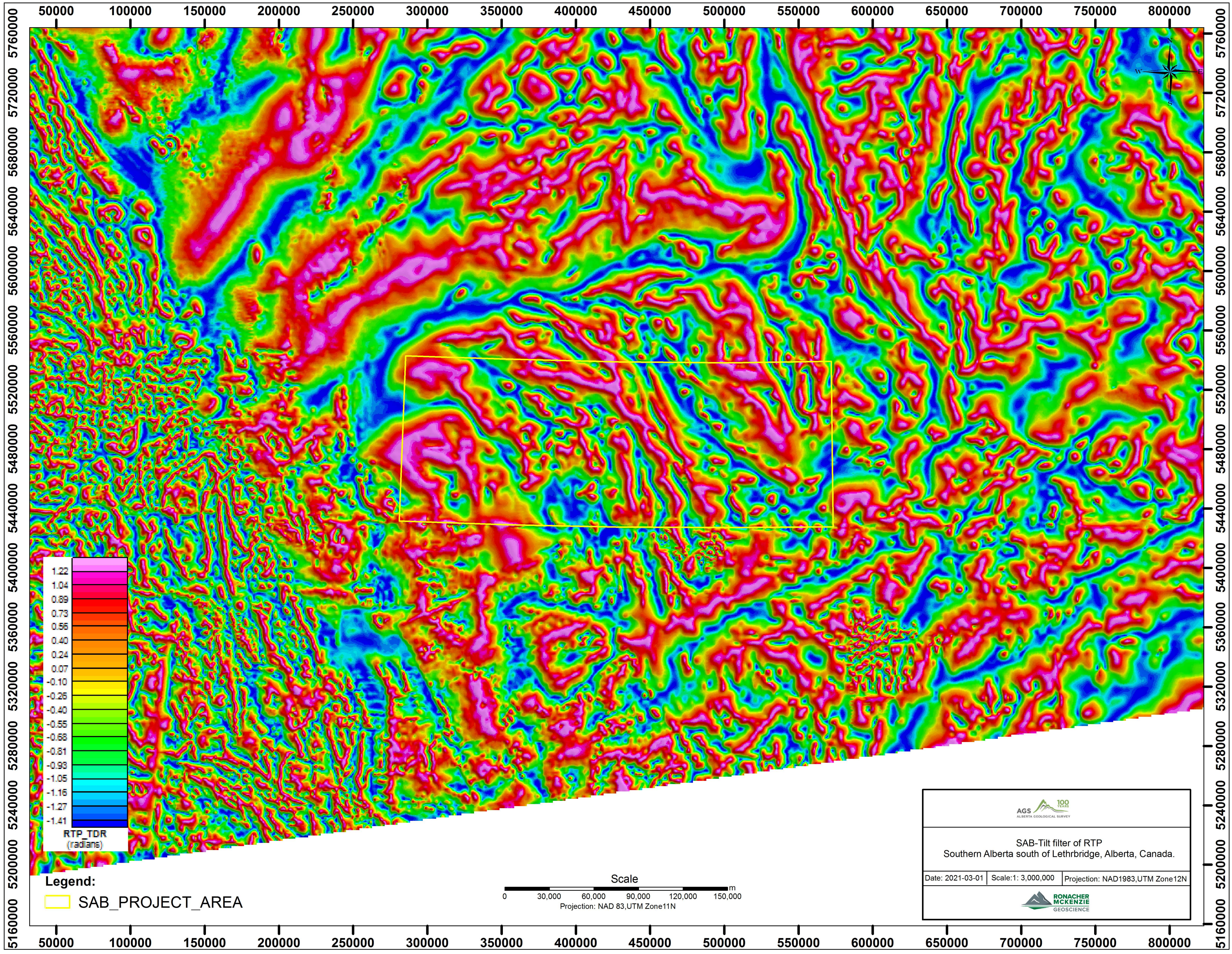


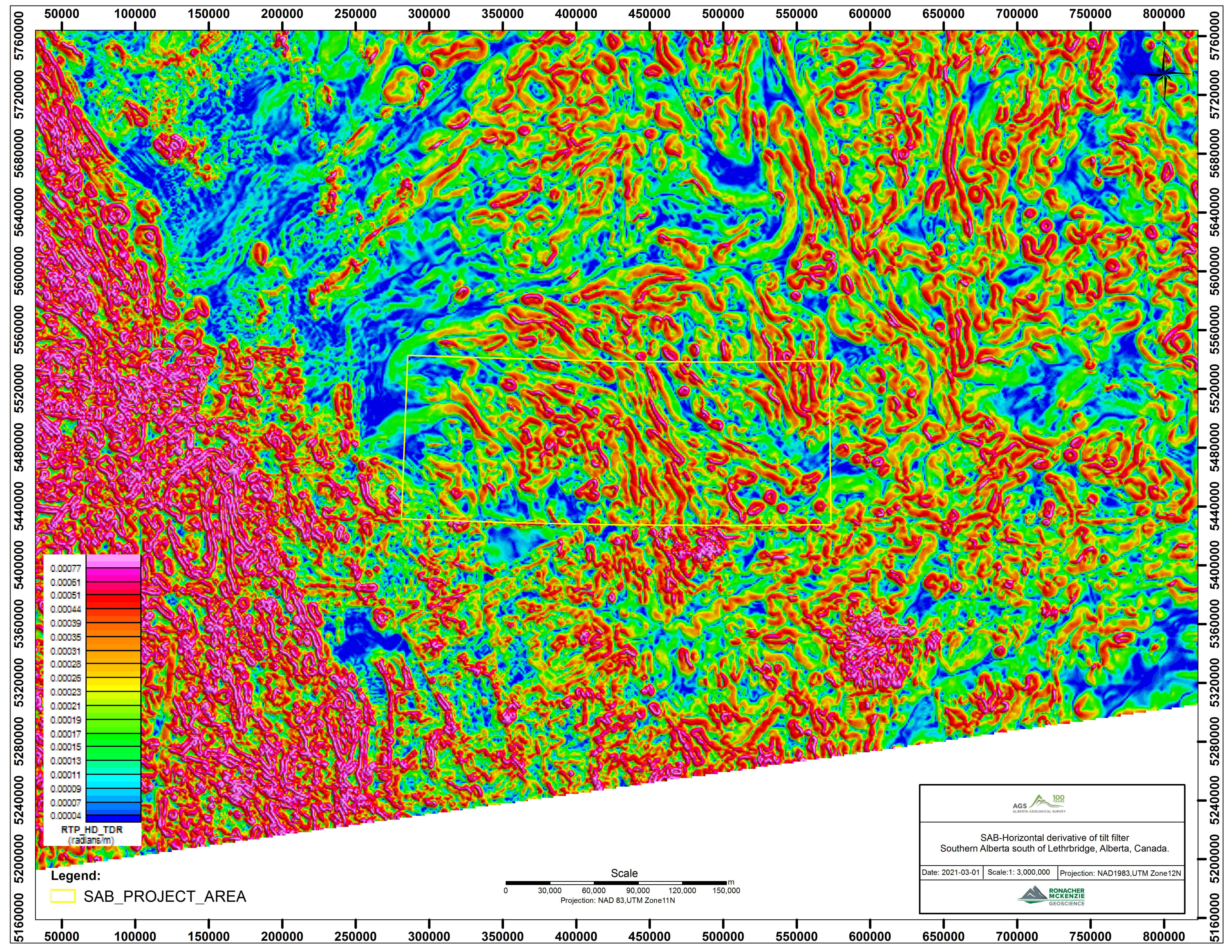
50000
100000
150000
200000
250000
300000
350000
400000
450000
500000
550000
600000
650000
700000
750000
800000
5760000
5720000
5680000
5640000
5600000
5560000
5520000
5480000
5440000
5400000
5360000
5320000
5280000
5240000
5200000
5160000
473.04
339.79
268.90
220.92
185.35
155.43
129.35
105.85
84.42
64.85
46.88
30.61
15.45
1.29
-11.97
-24.93
-36.40
-47.69
-59.15
-69.81
-79.82
-89.62
-99.62
-110.75
-122.78
-136.08
-152.36
-172.98
-196.61
-226.17
-266.45
-391.20
RTP_BW
(nT)
Legend:
SAB_PROJECT_AREA
Scale
0
30,000
60,000
90,000
120,000
150,000
m
Projection: NAD 83,UTM Zone11N
AGS
100 YEARS
ALBERTA GEOLOGICAL SURVEY
SAB-Reduction to pole - black and white
Southern Alberta south of Lethrbridge, Alberta, Canada.
Date: 2021-03-01
Scale:1: 3,000,000
Projection: NAD1983,UTM Zone12N
RONACHER MCKENZIE GEOSCIENCE


50000 100000 150000 200000 250000 300000 350000 400000 450000 500000 550000 600000 650000 700000 750000 800000
5160000 – 5760000
0.07
0.05
0.04
0.03
0.03
0.02
0.02
0.02
0.01
0.01
0.01
0.01
0.01
0.01
0.01
0.01
0.00
0.00
0.00
RTP_THDR
(nT/m)
Legend:
SAB_PROJECT_AREA
Scale
0 30,000 60,000 90,000 120,000 150,000 m
Projection: NAD 83,UTM Zone11N
AGS ALBERTA GEOLOGICAL SURVEY
100 YEARS
SAB-Total horizontal derivative of RTP
Southern Alberta south of Lethrbridge, Alberta, Canada.
Date: 2021-03-01
Scale:1: 3,000,000
Projection: NAD1983,UTM Zone12N
RONACHER MCKENZIE GEOSCIENCE

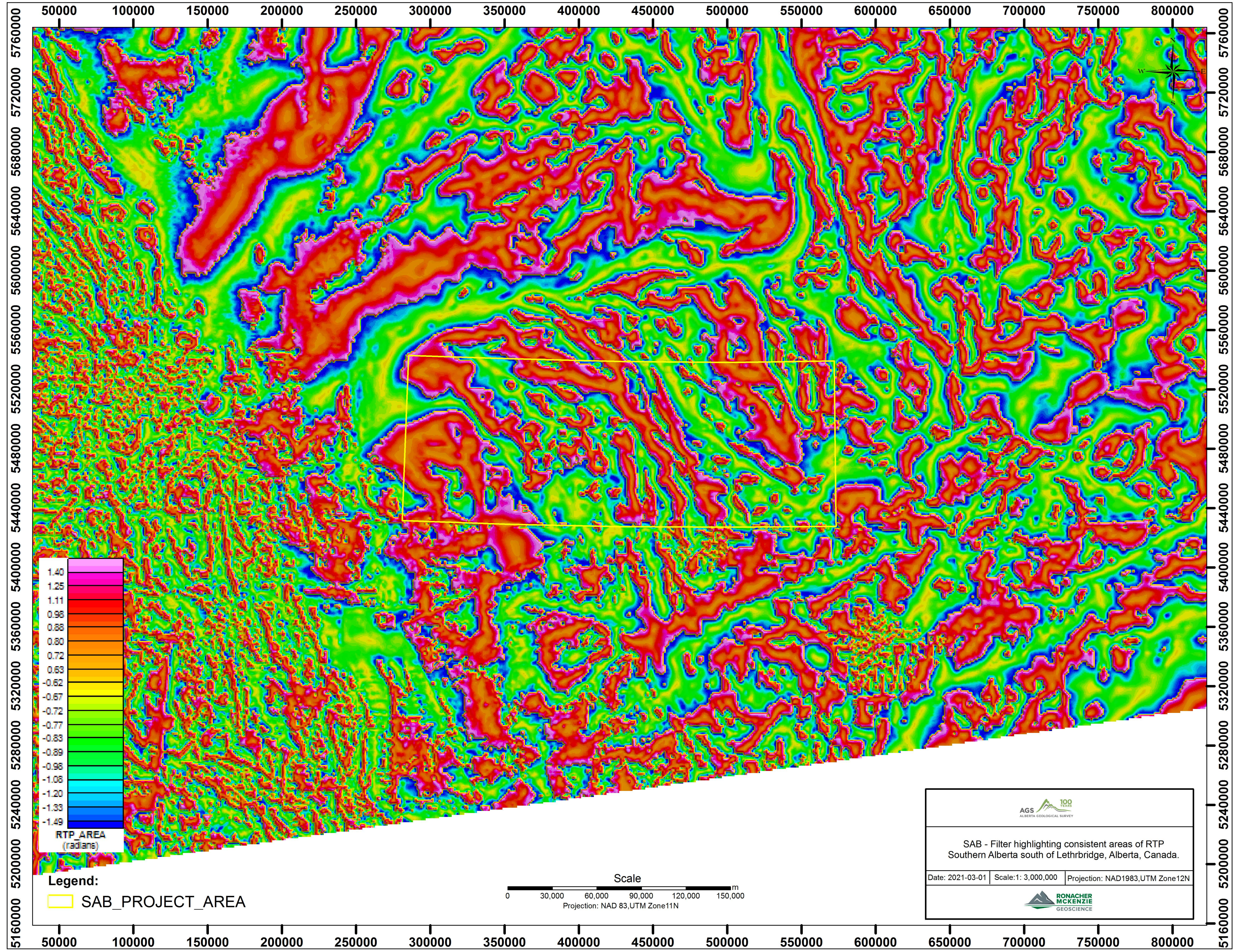


RTP_THDR_VD1
(nT/m^2)
0.000017
0.000009
0.000006
0.000004
0.000002
0.000001
0.000001
0.000000
-0.000000
-0.000001
-0.000001
-0.000002
-0.000002
-0.000003
-0.000004
-0.000005
-0.000007
-0.000012
-0.000025
Legend:
SAB_PROJECT_AREA
Scale
0 30,000 60,000 90,000 120,000 150,000 m
Projection: NAD 83,UTM Zone11N
AGS ALBERTA GEOLOGICAL SURVEY 100 YEARS
SAB-First vertical derivative of total horizontal derivative
Southern Alberta south of Lethrbridge, Alberta, Canada.
Date: 2021-03-01
Scale:1: 3,000,000
Projection: NAD1983,UTM Zone12N
RONACHER MCKENZIE GEOSCIENCE
50000 100000 150000 200000 250000 300000 350000 400000 450000 500000 550000 600000 650000 700000 750000 800000
5760000 5720000 5680000 5640000 5600000 5560000 5520000 5480000 5440000 5400000 5360000 5320000 5280000 5240000 5200000 5160000

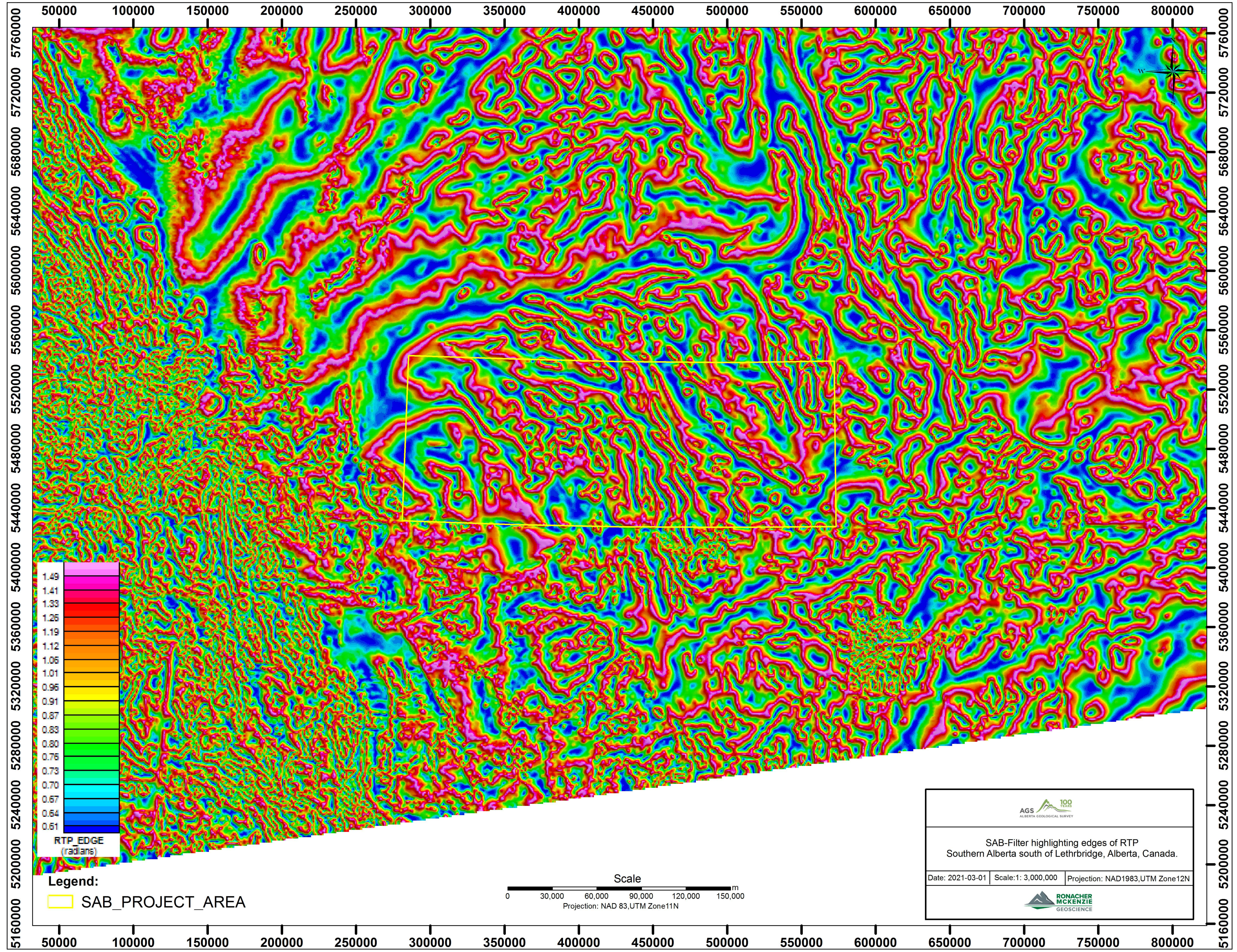

50000 100000 150000 200000 250000 300000 350000 400000 450000 500000 550000 600000 650000 700000 750000 800000
5760000 5720000 5680000 5640000 5600000 5560000 5520000 5480000 5440000 5400000 5360000 5320000 5280000 5240000 5200000 5160000
1.22
1.04
0.89
0.73
0.56
0.40
0.24
0.07
-0.10
-0.26
-0.40
-0.55
-0.68
-0.81
-0.93
-1.05
-1.16
-1.27
-1.41
RTP_TDR
(radians)
Legend:
SAB_PROJECT_AREA
Scale
0 30,000 60,000 90,000 120,000 150,000 m
Projection: NAD 83,UTM Zone11N
AGS
ALBERTA GEOLOGICAL SURVEY
100 YEARS
SAB-Tilt filter of RTP
Southern Alberta south of Lethrbridge, Alberta, Canada.
Date: 2021-03-01
Scale:1: 3,000,000
Projection: NAD1983,UTM Zone12N
RONACHER MCKENZIE GEOSCIENCE



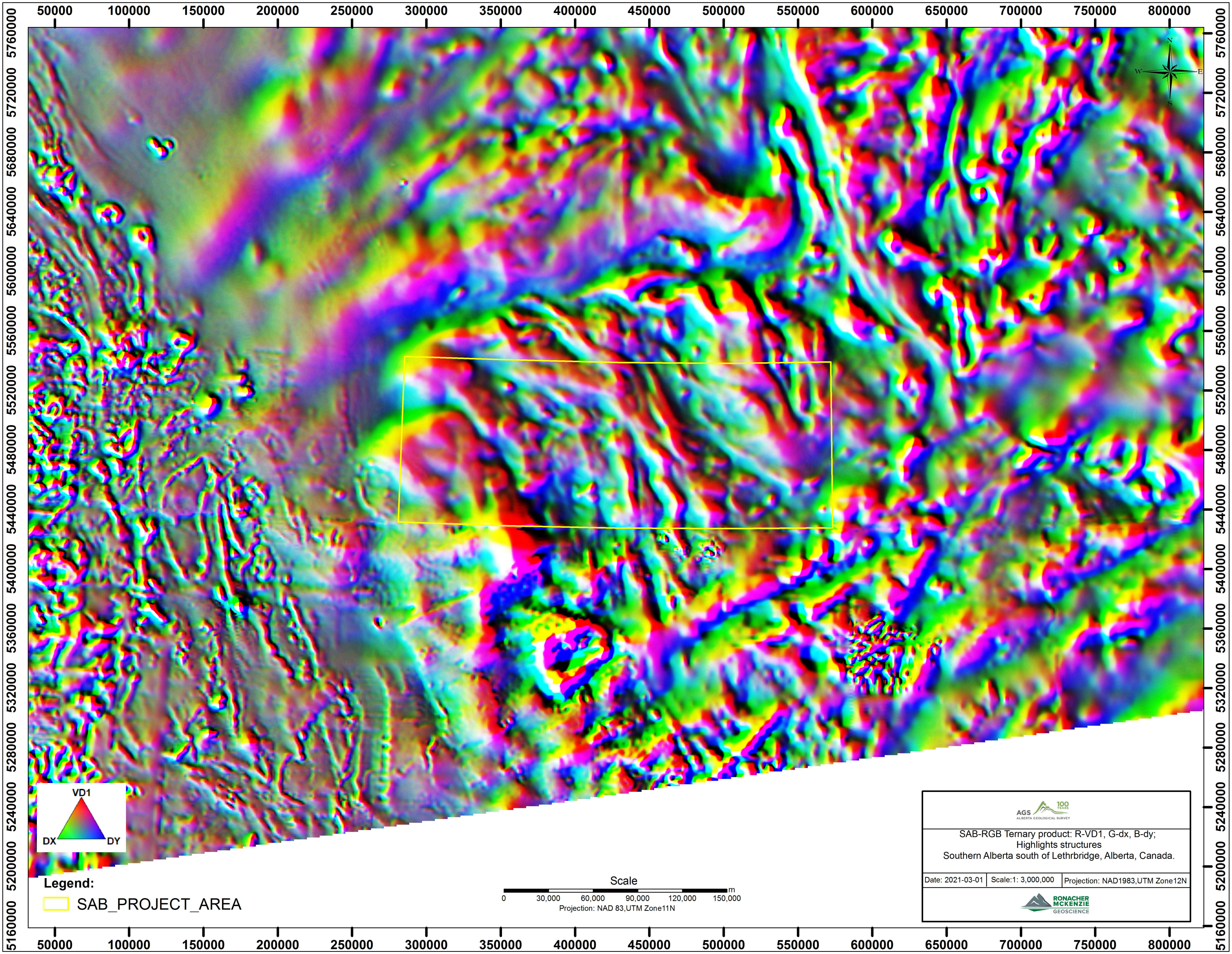
50000
100000
150000
200000
250000
300000
350000
400000
450000
500000
550000
600000
650000
700000
750000
800000
5760000
5720000
5680000
5640000
5600000
5560000
5520000
5480000
5440000
5400000
5360000
5320000
5280000
5240000
5200000
5160000
0.00077
0.00061
0.00051
0.00044
0.00039
0.00035
0.00031
0.00028
0.00026
0.00023
0.00021
0.00019
0.00017
0.00015
0.00013
0.00011
0.00009
0.00007
0.00004
RTP_HD_TDR
(radians/m)
Legend:
SAB_PROJECT_AREA
Scale
0
30,000
60,000
90,000
120,000
150,000
m
Projection: NAD 83,UTM Zone11N
AGS
ALBERTA GEOLOGICAL SURVEY
100 YEARS
SAB-Horizontal derivative of tilt filter
Southern Alberta south of Lethrbridge, Alberta, Canada.
Date: 2021-03-01
Scale:1: 3,000,000
Projection: NAD1983,UTM Zone12N
RONACHER MCKENZIE GEOSCIENCE



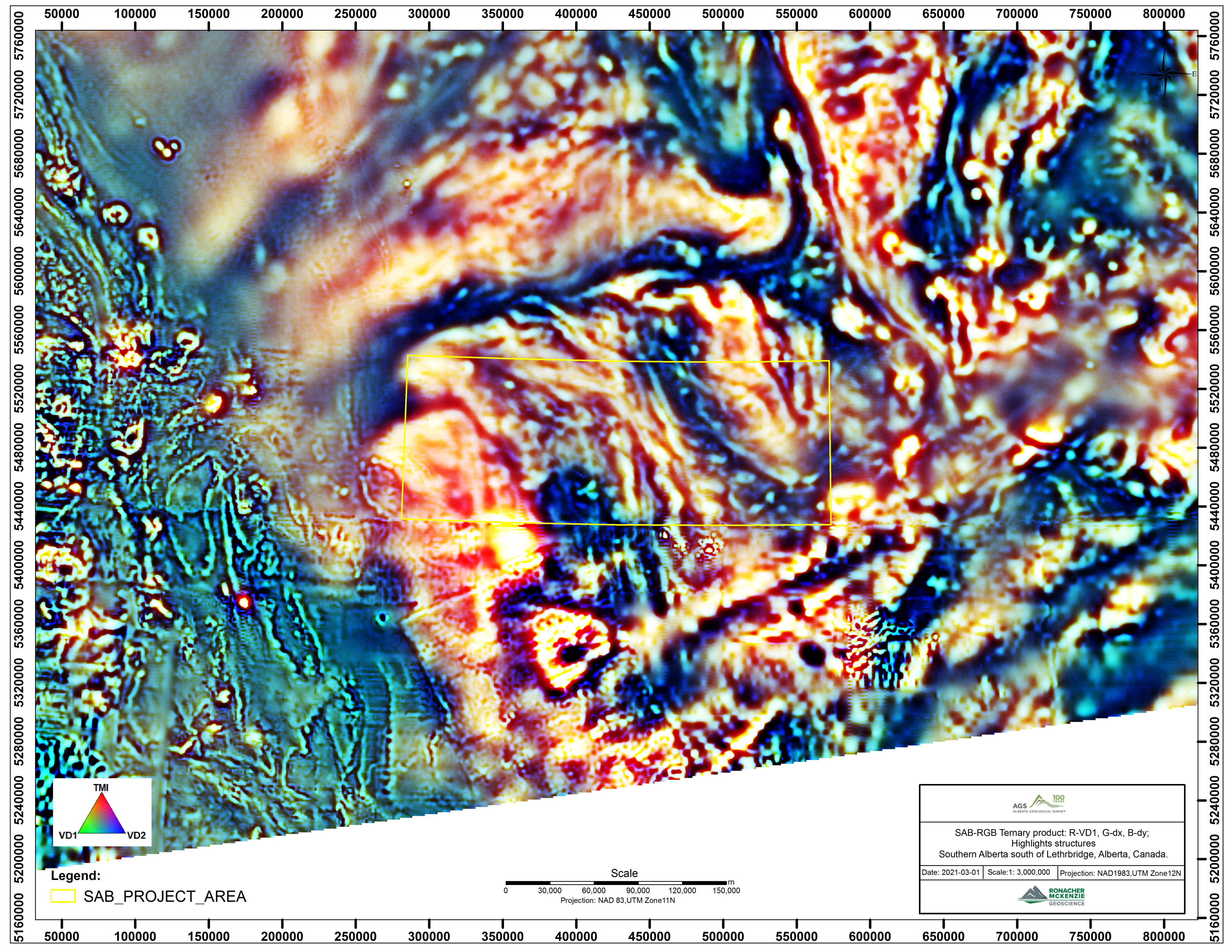
50000 100000 150000 200000 250000 300000 350000 400000 450000 500000 550000 600000 650000 700000 750000 800000
5760000 5720000 5680000 5640000 5600000 5560000 5520000 5480000 5440000 5400000 5360000 5320000 5280000 5240000 5200000 5160000
1.40
1.25
1.11
0.98
0.88
0.80
0.72
0.63
-0.62
-0.67
-0.72
-0.77
-0.83
-0.89
-0.96
-1.08
-1.20
-1.33
-1.49
RTP_AREA
(radians)
Legend:
SAB_PROJECT_AREA
Scale
m
0 30,000 60,000 90,000 120,000 150,000
Projection: NAD 83,UTM Zone11N
AGS
ALBERTA GEOLOGICAL SURVEY
100 YEARS
SAB - Filter highlighting consistent areas of RTP
Southern Alberta south of Lethrbridge, Alberta, Canada.
Date: 2021-03-01
Scale:1: 3,000,000
Projection: NAD1983,UTM Zone12N
RONACHER MCKENZIE GEOSCIENCE

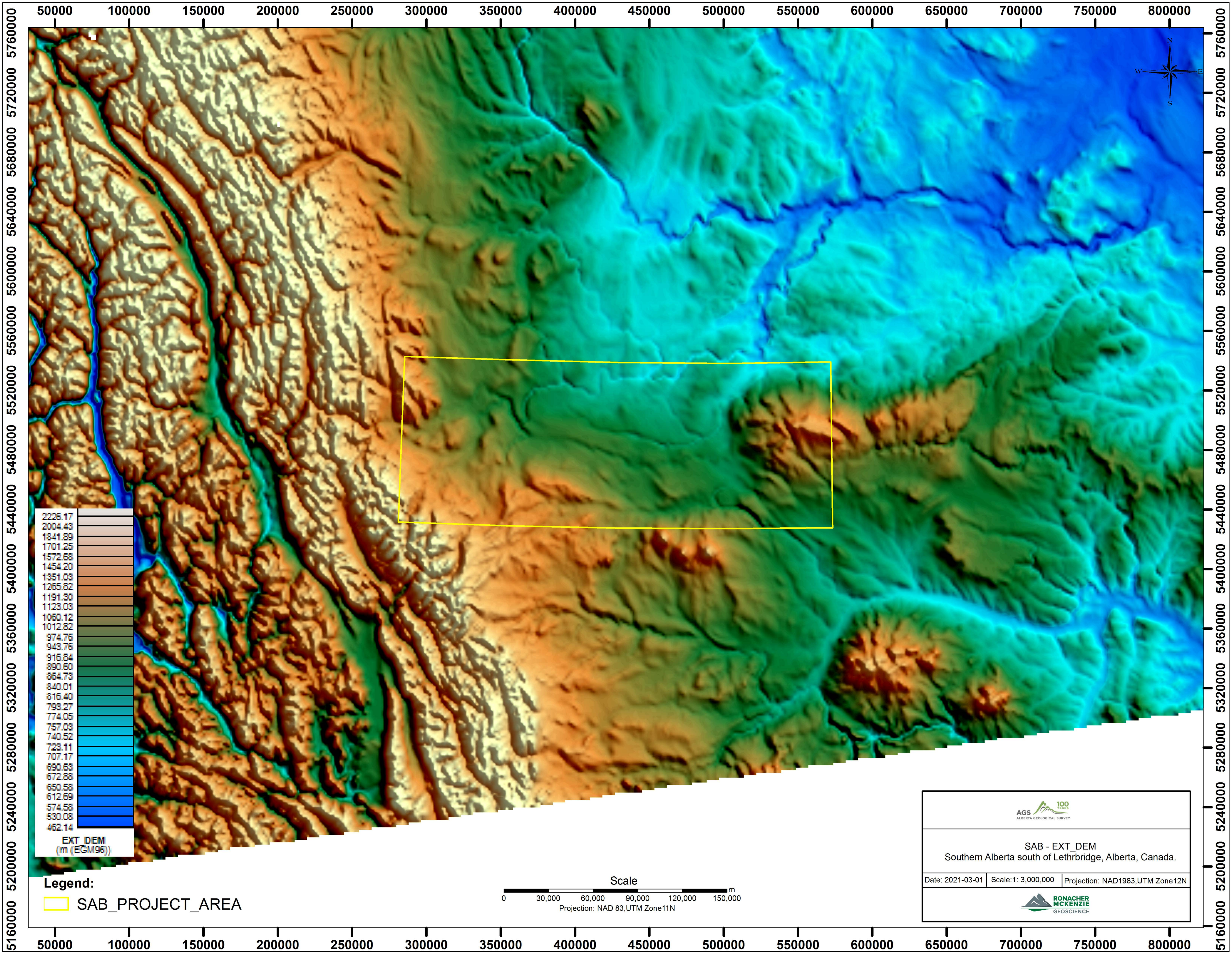


RTP_EDGE
(radians)
1.49
1.41
1.33
1.26
1.19
1.12
1.06
1.01
0.96
0.91
0.87
0.83
0.80
0.76
0.73
0.70
0.67
0.64
0.61
Legend:
SAB_PROJECT_AREA
Scale
0
30,000
60,000
90,000
120,000
150,000
m
Projection: NAD 83,UTM Zone11N
AGS
ALBERTA GEOLOGICAL SURVEY
100 YEARS
SAB-Filter highlighting edges of RTP
Southern Alberta south of Lethrbridge, Alberta, Canada.
Date: 2021-03-01
Scale:1: 3,000,000
Projection: NAD1983,UTM Zone12N
RONACHER MCKENZIE GEOSCIENCE

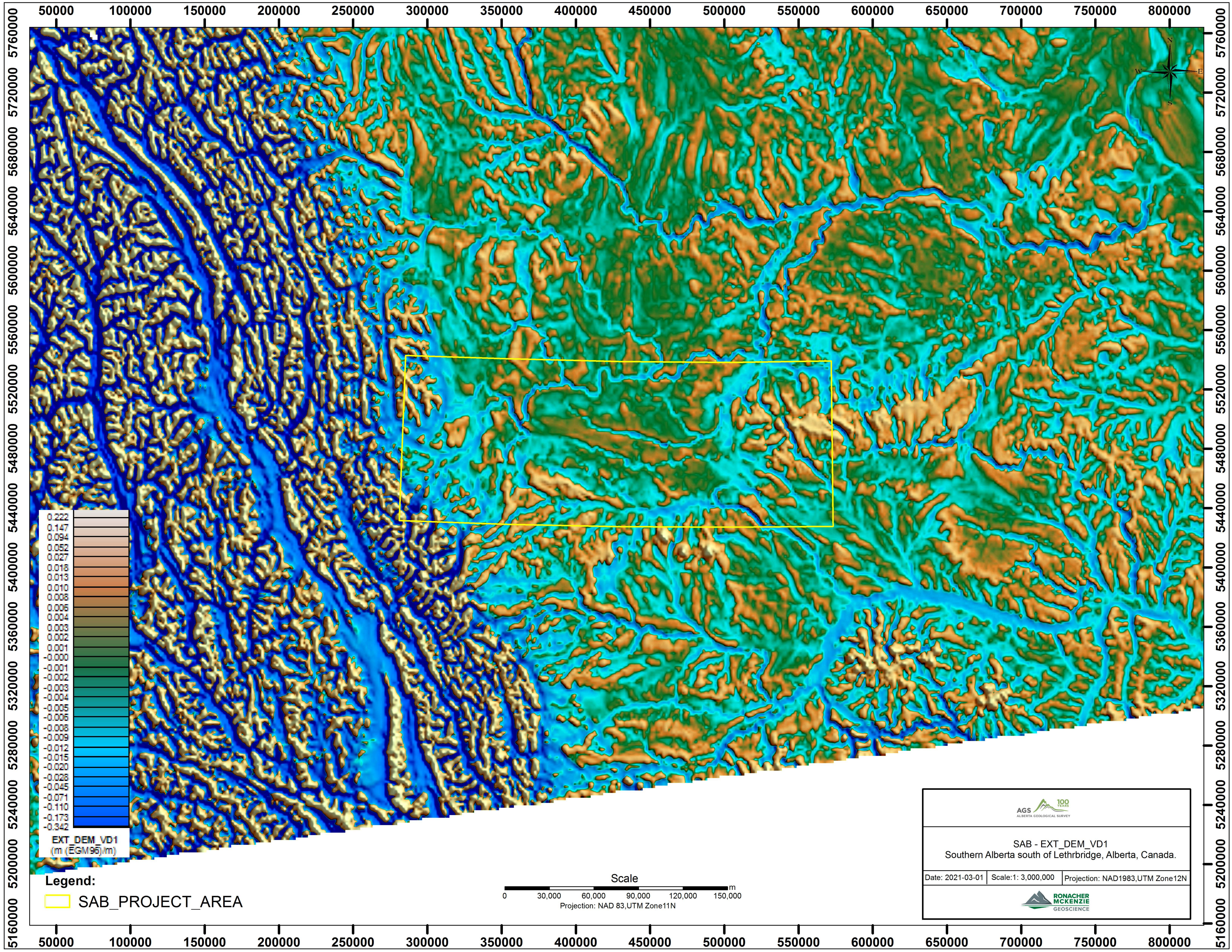


50000
100000
150000
200000
250000
300000
350000
400000
450000
500000
550000
600000
650000
700000
750000
800000
5760000
5720000
5680000
5640000
5600000
5560000
5520000
5480000
5440000
5400000
5360000
5320000
5280000
5240000
5200000
5160000
VD1
DX
DY
Legend:
SAB_PROJECT_AREA
Scale
0
30,000
60,000
90,000
120,000
150,000
m
Projection: NAD 83,UTM Zone11N
AGS
ALBERTA GEOLOGICAL SURVEY
SAB-RGB Ternary product: R-VD1, G-dx, B-dy;
Highlights structures
Southern Alberta south of Lethrbridge, Alberta, Canada.
Date: 2021-03-01
Scale:1: 3,000,000
Projection: NAD1983,UTM Zone12N
RONACHER MCKENZIE GEOSCIENCE

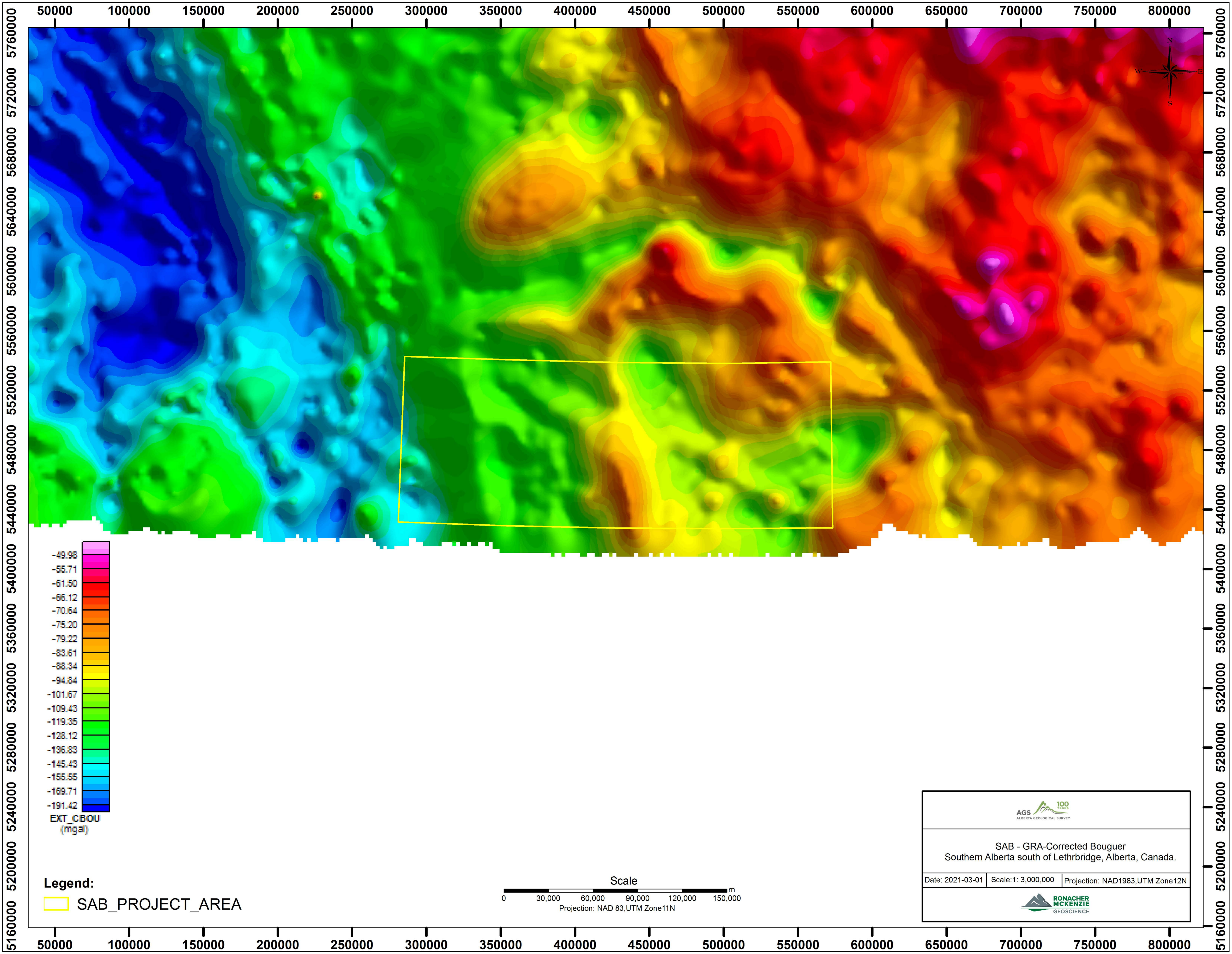

TMI
VD1
VD2
Legend:
SAB_PROJECT_AREA
Scale
0 30,000 60,000 90,000 120,000 150,000 m
Projection: NAD 83,UTM Zone11N
AGS ALBERTA GEOLOGICAL SURVEY 100 YEARS
SAB-RGB Ternary product: R-VD1, G-dx, B-dy;
Highlights structures
Southern Alberta south of Lethrbridge, Alberta, Canada.
Date: 2021-03-01
Scale:1: 3,000,000
Projection: NAD1983,UTM Zone12N
RONACHER MCKENZIE GEOSCIENCE

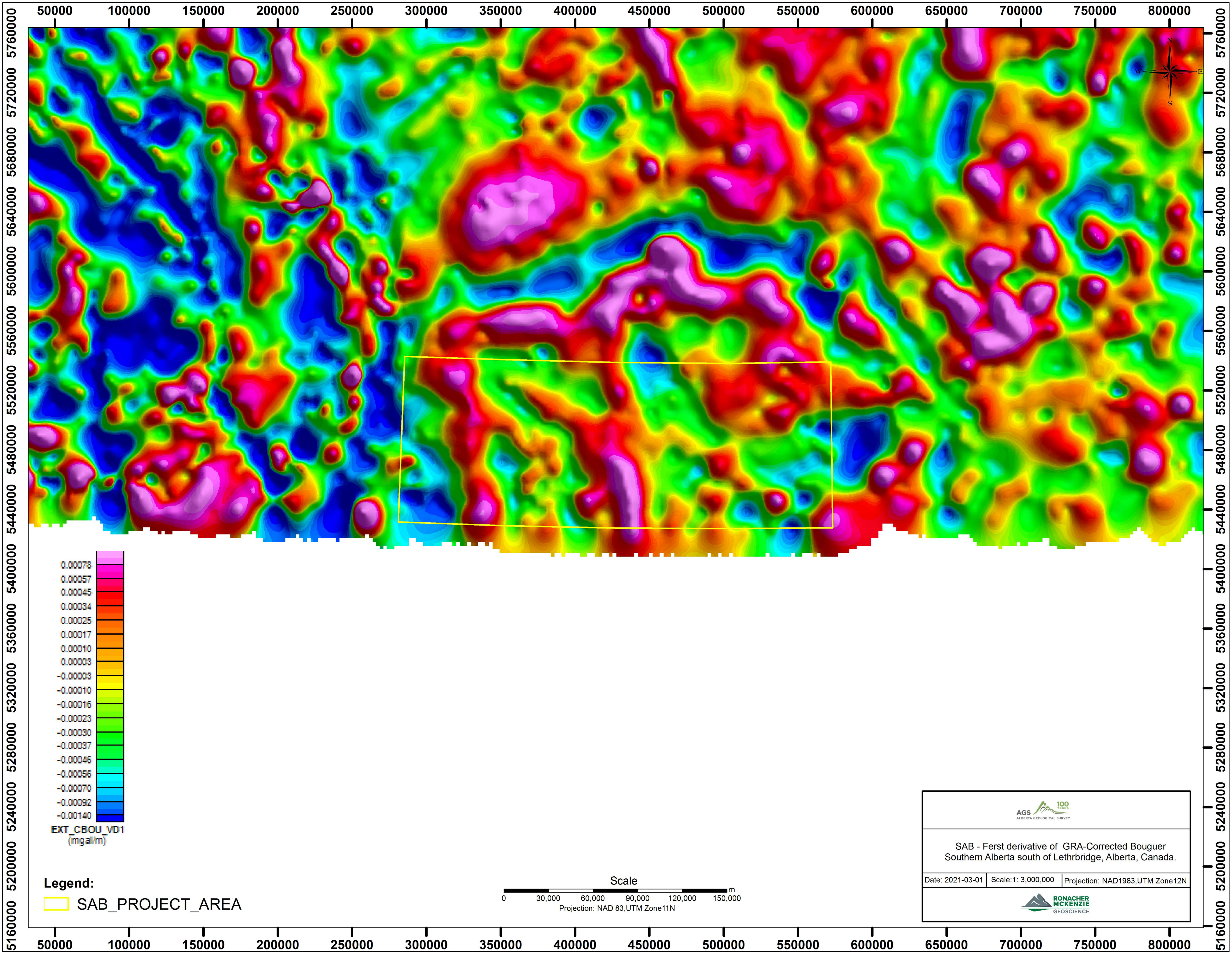


SAB - EXT_DEM
Southern Alberta south of Lethrbridge, Alberta, Canada.
Date: 2021-03-01
Scale:1: 3,000,000
Projection: NAD1983,UTM Zone12N
AGS ALBERTA GEOLOGICAL SURVEY 100 YEARS
RONACHER MCKENZIE GEOSCIENCE
Legend:
SAB_PROJECT_AREA
EXT_DEM
(m (EGM96))
2226.17
2004.43
1841.89
1701.25
1572.68
1454.20
1351.03
1265.82
1191.30
1123.03
1060.12
1012.82
974.76
943.76
916.84
890.60
864.73
840.01
816.40
793.27
774.05
757.03
740.52
723.11
707.17
690.63
672.88
650.58
612.69
574.58
530.08
462.14
Scale
0
30,000
60,000
90,000
120,000
150,000
m
Projection: NAD 83,UTM Zone11N



0.222
0.147
0.094
0.052
0.027
0.018
0.013
0.010
0.008
0.006
0.004
0.003
0.002
0.001
-0.000
-0.001
-0.002
-0.003
-0.004
-0.005
-0.006
-0.008
-0.009
-0.012
-0.015
-0.020
-0.028
-0.045
-0.071
-0.110
-0.173
-0.342
EXT_DEM_VD1
(m (EGM96)/m)
Legend:
SAB_PROJECT_AREA
Scale
0 30,000 60,000 90,000 120,000 150,000 m
Projection: NAD 83,UTM Zone11N
AGS ALBERTA GEOLOGICAL SURVEY 100 YEARS
SAB - EXT_DEM_VD1
Southern Alberta south of Lethrbridge, Alberta, Canada.
Date: 2021-03-01
Scale:1: 3,000,000
Projection: NAD1983,UTM Zone12N
RONACHER MCKENZIE GEOSCIENCE
50000 100000 150000 200000 250000 300000 350000 400000 450000 500000 550000 600000 650000 700000 750000 800000
5160000 5200000 5240000 5280000 5320000 5360000 5400000 5440000 5480000 5520000 5560000 5600000 5640000 5680000 5720000 5760000


50000 100000 150000 200000 250000 300000 350000 400000 450000 500000 550000 600000 650000 700000 750000 800000
5160000 5200000 5240000 5280000 5320000 5360000 5400000 5440000 5480000 5520000 5560000 5600000 5640000 5680000 5720000 5760000
N
S
W
E
-49.98
-55.71
-61.50
-66.12
-70.64
-75.20
-79.22
-83.61
-88.34
-94.84
-101.67
-109.43
-119.35
-128.12
-136.83
-145.43
-155.55
-169.71
-191.42
EXT_CBOU
(mgal)
Legend:
SAB_PROJECT_AREA
Scale
m
0
30,000
60,000
90,000
120,000
150,000
Projection: NAD 83,UTM Zone11N
AGS
100 YEARS
ALBERTA GEOLOGICAL SURVEY
SAB - GRA-Corrected Bouguer
Southern Alberta south of Lethrbridge, Alberta, Canada.
Date: 2021-03-01
Scale:1: 3,000,000
Projection: NAD1983,UTM Zone12N
RONACHER MCKENZIE GEOSCIENCE



50000
100000
150000
200000
250000
300000
350000
400000
450000
500000
550000
600000
650000
700000
750000
800000
5760000
5720000
5680000
5640000
5600000
5560000
5520000
5480000
5440000
5400000
5360000
5320000
5280000
5240000
5200000
5160000
0.00078
0.00057
0.00045
0.00034
0.00025
0.00017
0.00010
0.00003
-0.00003
-0.00010
-0.00016
-0.00023
-0.00030
-0.00037
-0.00045
-0.00056
-0.00070
-0.00092
-0.00140
EXT_CBOU_VD1
(mgal/m)
Legend:
SAB_PROJECT_AREA
Scale
0
30,000
60,000
90,000
120,000
150,000
m
Projection: NAD 83,UTM Zone11N
AGS
ALBERTA GEOLOGICAL SURVEY
100 YEARS
SAB - Ferst derivative of GRA-Corrected Bouguer
Southern Alberta south of Lethrbridge, Alberta, Canada.
Date: 2021-03-01
Scale:1: 3,000,000
Projection: NAD1983,UTM Zone12N
RONACHER MCKENZIE GEOSCIENCE