

# Hannanmetals



**FIRST-MOVER ADVANTAGE**  
**BASIN SCALE**  
**COPPER | SILVER**  
**PERU**

**CORPORATE PRESENTATION**  
**JUNE 2020**

TSXV : **HAN** | OTC: **HANNF**



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**Qualified Person:** The qualified person for Hannan's projects, Michael Hudson, CEO for Hannan, and a Fellow of the Australasian Institute of Mining and Metallurgy, has reviewed and verified the contents of this presentation.

June 2020

# Key Points



- **Hannan is a first mover.** A new frontier basin-scale copper-silver district
- Early exploration results support the geological model for a **major sediment-hosted copper system**, similar the giant Kupferschiefer deposits in Europe
- Hannan recognized the exceptional potential for large copper-silver deposits in this part of Peru and has aggressively staked a commanding position over 660 square kilometres of prospective geology
- On a basin scale, the project exhibits district wide mineralization hosted in reduced sedimentary rocks covering at least **120 kilometres of strike and 50 kilometres** of width in scattered outcrops, road cuts, and float & stream boulders



# Key Points

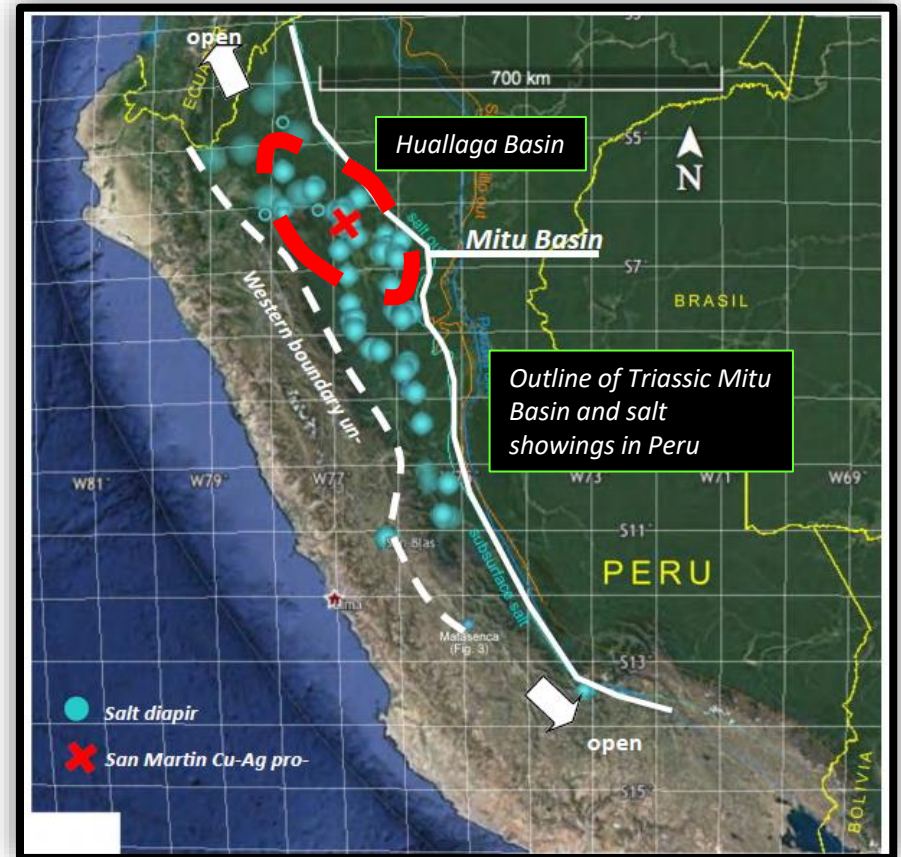


- The target areas are aligned along **linear trends** of ~ **100km strike length**
- **Salt tectonics** as key driver and **regional seismics** to understand process
- Best results from **outcrop (channel samples)** – 20km apart:
  - **3m @ 2.5% Cu & 22g/t Ag** (LD190517-19)
  - **2m @ 5.9% Cu & 66g/t Ag** (TC190536-38)
  - **0.6m @ 8.7% Cu & 59g/t Ag** (TC190536-38)

# History

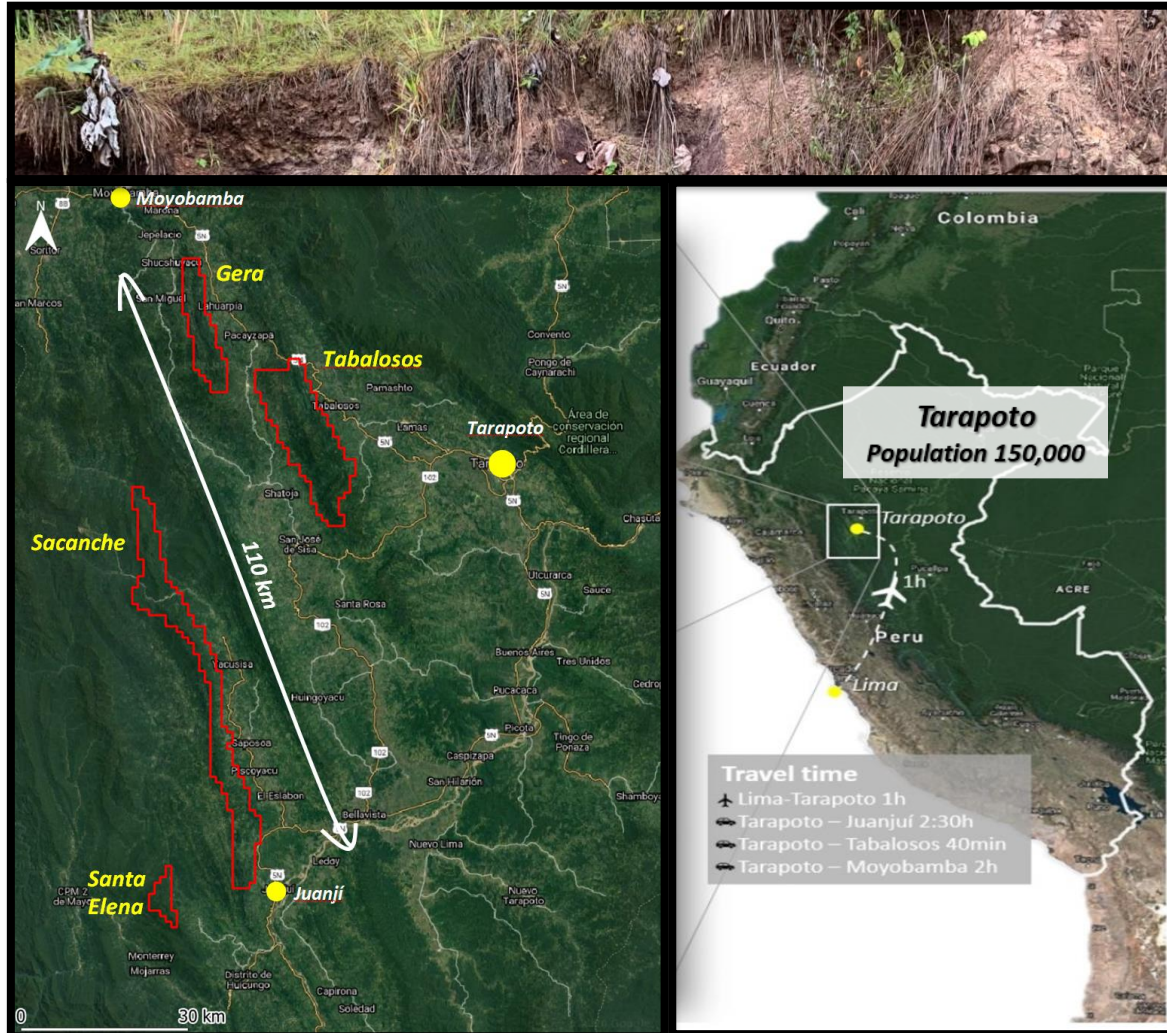


- Located in North Central Peru, in the sub-Andean zone
- **Historically overlooked by the mineral industry**, but it has been the focus of the hydrocarbon industry for decades. Only two years RTX, privateco worked in area.
- Described as: **“One of the best surveyed thrust and fold belts in the world (for oil and gas)”**. At the **San Martin project** alone there is **2,000 kilometres of 2D seismic**
- However, the style of deformation in the Sub-Andean zone is mainly related to salt tectonics **rather than** a compressional thrust and fold belt
- This insight has opened A ‘**new search space**’ for sediment-hosted copper deposits in Peru.





# Location & Access



65,600 ha covering 120 kilometres of strike

# Capital Structure



HAN



HANNF

**INSIDERS:**

16%

**SHARES ON ISSUE:**

74.7 M

**FULLY DILUTED:**

104.6 M

**RECENT PRICE:**

C\$0.39 (09 June)

**MARKET CAP:**

C\$29.1 M

**CASH:**

C\$1.6 M

**ENTERPRISE VALUE:**

C\$27.5 M

## Options

Expiring July 4, 2020	\$0.40	75,000	
Expiring July 21, 2020	\$0.30	100,000	
Expiring August 28, 2020	\$0.26	250,000	
Expiring November 9, 2020	\$0.28	50,000	
Expiring November 14, 2021	\$0.10	921,000	
Expiring November 15, 2021	\$0.10	120,000	
Expiring February 1, 2022	\$0.26	50,000	
Expiring January 23, 2023	\$0.25	3,545,000	
Expiring September 4, 2023	\$0.13	500,000	5,611,000

## Warrants

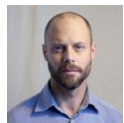
Expiring April 24, 2021	\$0.15	1,852,500	
Expiring April 30, 2021	\$0.15	322,500	
Expiring July 6, 2021	\$0.25	7,390,900	
Expiring February 18, 2022	\$0.30	14,683,262	24,249,162



# Directors & Officers



**Michael Hudson (Chairman & CEO):** *B.Sc. (Hons), GDipAppFin, FAusIMM, MAIG*



**Lars Dahlenborg (President):** *MSc.*



**David Henstridge (Director):** *B.Sc. (Hons), FAusIMM, MAIG, MGSAust*



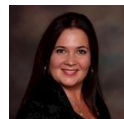
**Georgina Carnegie (Director):** *B.Com, AM Harvard*



**Ciara Talbot (Director):** *B.Sc. (Honours)*



**Nick DeMare (Director):** *CPA, CA*



**Mariana Bermudez (Corporate Secretary)**



**Quinton Hennigh – Technical Adviser**

Hannan is managed by a group with careers built in the exploration industry.

In recent years, the group has raised more than US\$100M for European and Peruvian exploration and development.

Hannan management is highly experienced with a long history of working in Peru.

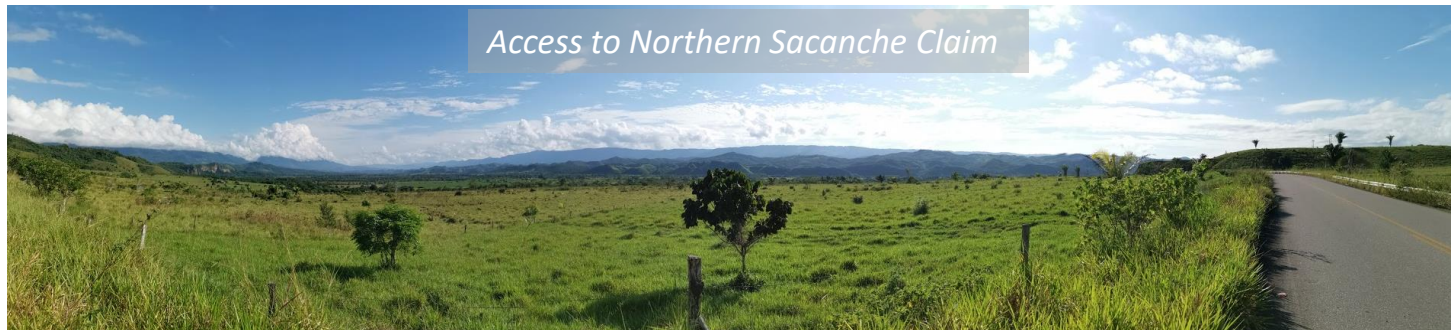


# Peru Copper Silver





# Peru Copper Silver



*Access to Northern Sacanche Claim*



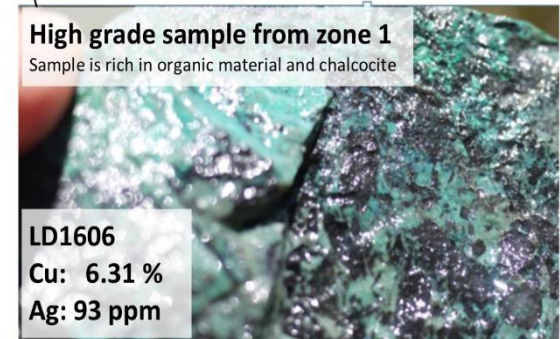
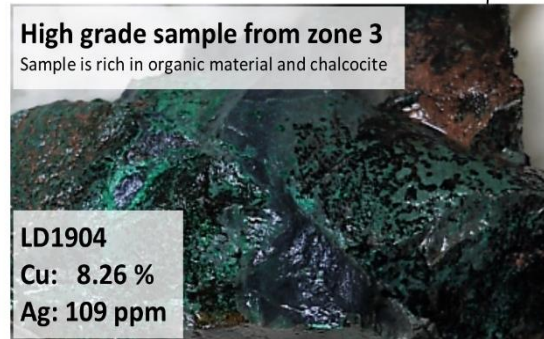
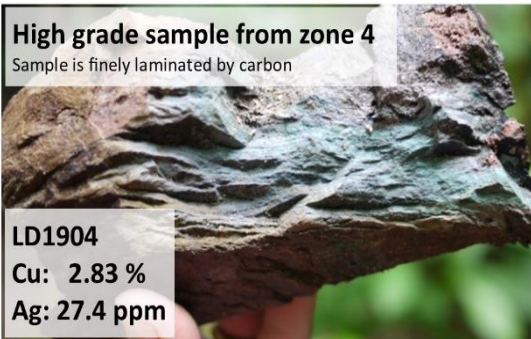
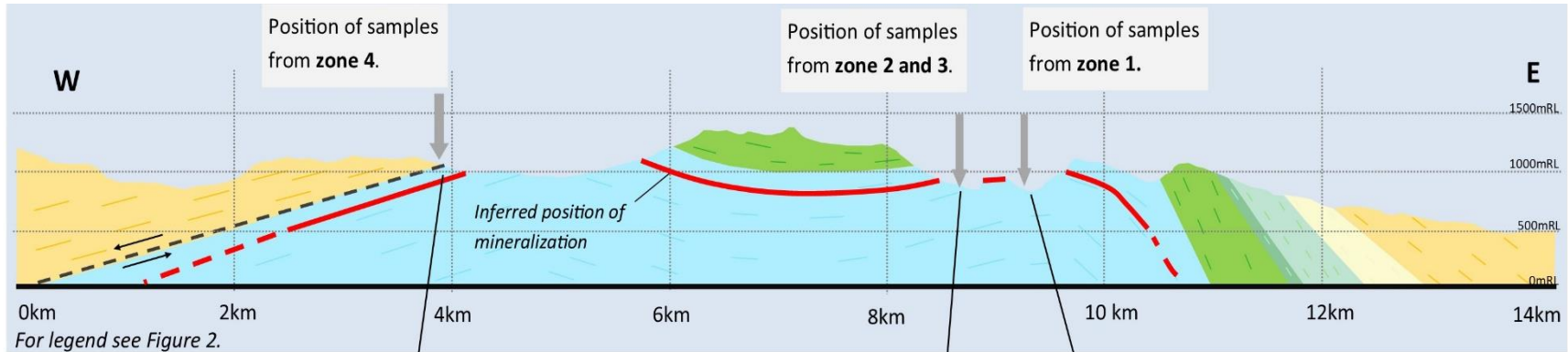
*Access to Tabalosos West*



*"Quartz arenite-gossan" outcrop at Sacanche*

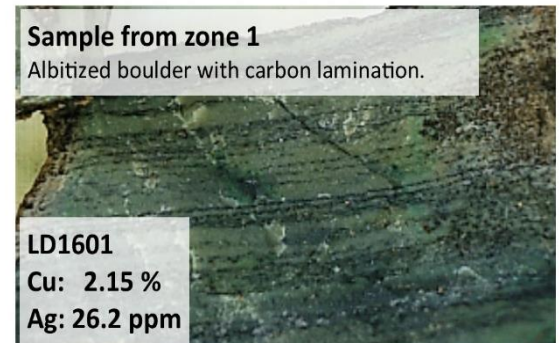
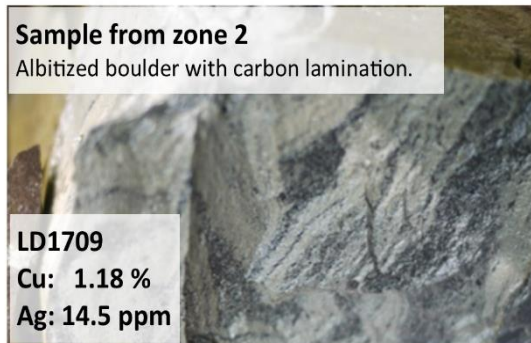


# TABALOSOS SECTION



## Mineralization:

disseminated chalcocite, covellite, bornite and digenite developed at the contact of oxidized and reduced strata





# Geology



*Rote Fäule style alteration*



*Rote Fäule style alteration after albite*



*Extrusive salt dome Huallaga River*

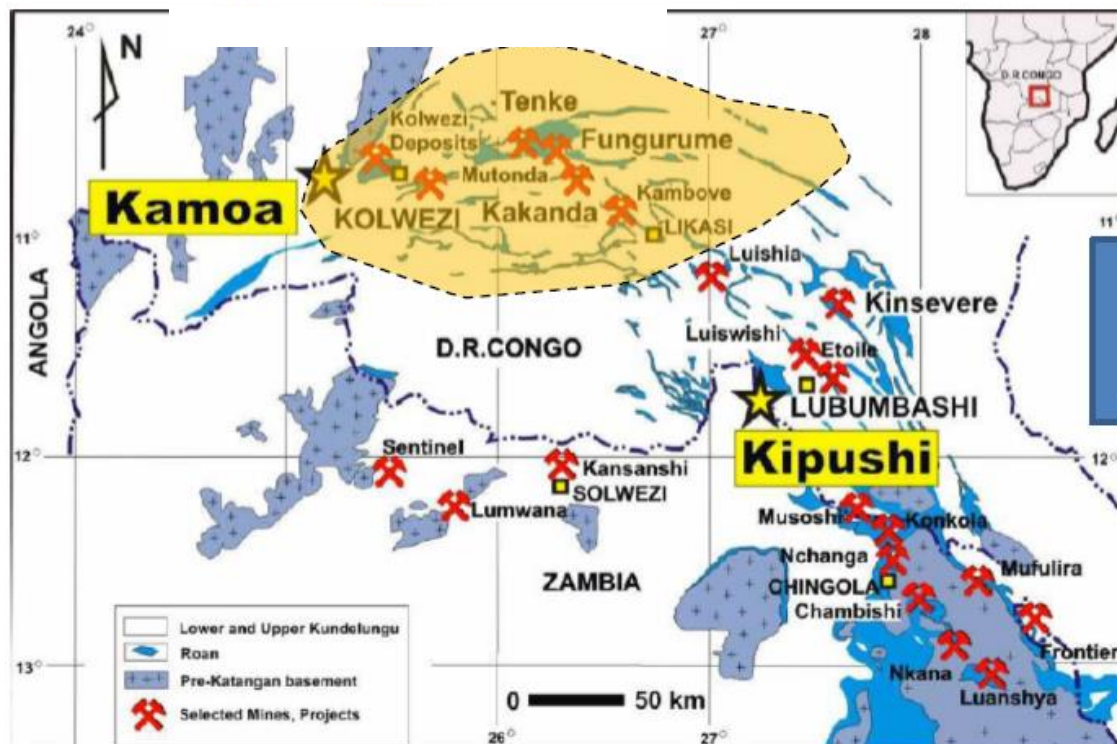


*Stratiform copper mineralization, up to 6m thick.  
Hosted in reduced sandstone of Sarayaquillo  
Formation over 1km strike.*

# Big Search Space



Hualлага Basin as the same scale as Central African Copper Belt  
(Ireland is 400km long, 200km wide).



Hualлага basin  
350x120km  
(prospective for copper)

# How the Magic Happens



Stratigraphic column: copper- silver mineralization is transgressive across multiple lithologies for multiple opportunities

All the right ingredients:  
Sources rocks, traps and  
>500m thick evaporites



	SYSTEM/EPOCH	Age M.Y.	Formation	m	Bedrock map color
CRETACEOUS	Late	55	Fm. Vivian	250	Yellow
			Fm. Chonta	600-900	Yellow
			Fm. Agua Caliente	200-450	Green
	Early	142	Grupo Oriental	200	Green
			Fm. Cushabatay	500-800	Green
Malm	142				Blue
JURASSIC	Dogger	117	Fm. Sarayaquillo	0-1800	Blue
TRIASSIC	Lias	175	Fm. Condorsinga	400	Blue
			Fm. Aramachay	300	Blue
	Late	200	Grupo Pucara	500	Blue
			Fm. Chambará	500	Blue
	Middle	210			
Early	220				Black
PERMIAN	Early	245-250	Grupo Mito	<2km	Source
			Shiani, Noi, Ene Cobacabana		Red

**1. Cushabatay-hosted target**  
**+50 metre thick gossans**

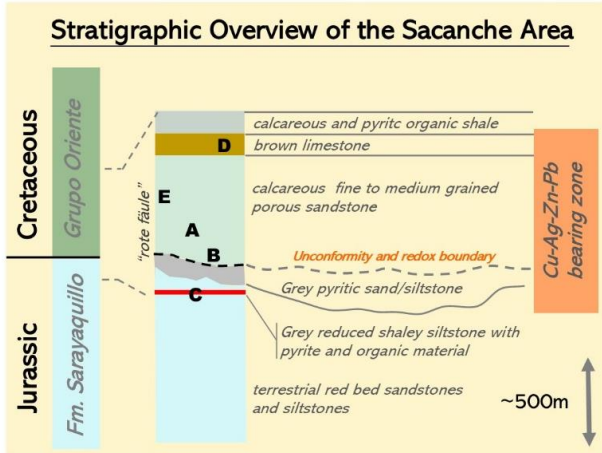
Bituminous sandstone host  
Analogue: Udokan, Russia: 2.8Gt @ 0.97% Cu 11.9g/t Ag

**2. Sarayaquillo-hosted target**  
**2-5 metres @ 2-5% Cu, 30-100g/t Ag**

Reduced facies type  
Analogue: European Kupferschiefer



# Basin Scale Redox Controls



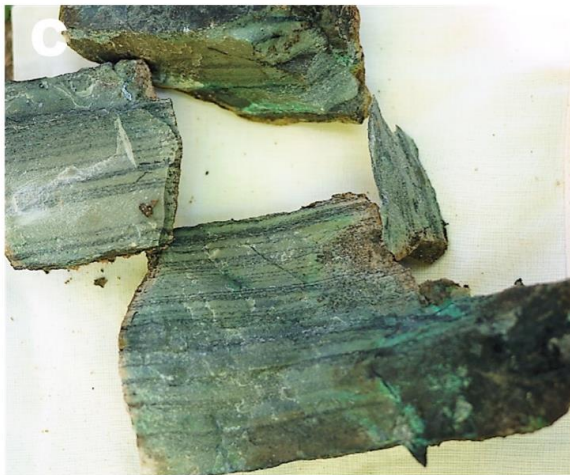
Shows transgressive stratabound and structurally controlled copper+silver and zinc+lead mineralization within multiple lithologies



A) Typical leached gossanous sandstone outcrop anomalous in Zn and Pb. These zones typically contain 0.1-2% Zn+Pb.



B) Cretaceous Cushabatay Formation fine sandstone with secondary copper mineralization. This sample assayed 2.5% Cu and 36 g/t Ag.



C) Upper Jurassic Sarayaquillo Formation, laminated siltstone to shale with chalcocite replacing pyrite and organic material. Typically contains 2-6% Cu and 15-60 g/t Ag and averages 0.5-5 metres thickness when exposed within 110km strike



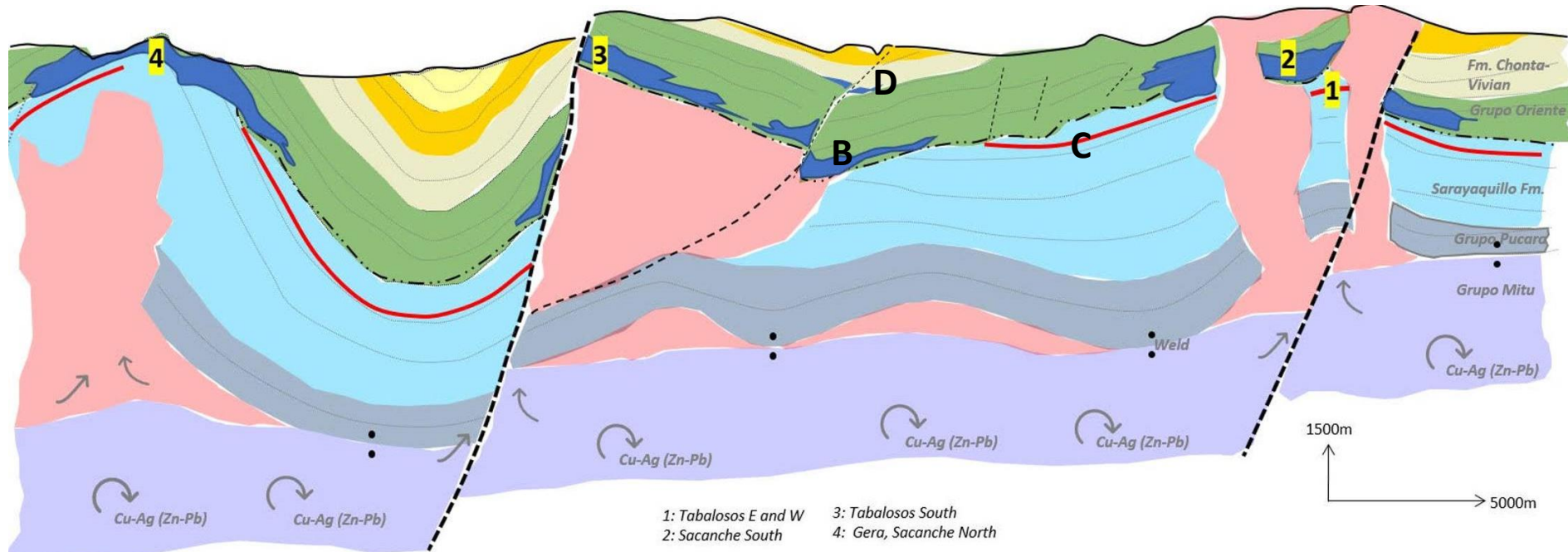
D) Cretaceous Esperanza Formation fossiliferous shaley limestone with secondary copper with 3.4% Cu and 26 g/t Ag



E) Siltstone boulder with Rote Fäule (spotted hematite) style redox alteration.



# Exploration Model



## 1) Basin architecture (245-220Ma)

- Triassic age rift sequence formed during the break-up of Pangea. Thick evaporite.

## 2) Source build up (210-175Ma)

- Brines scavenged metals from red bed sediments and volcaniclastics in the Mitu Group.

## 3) Fluid transport :

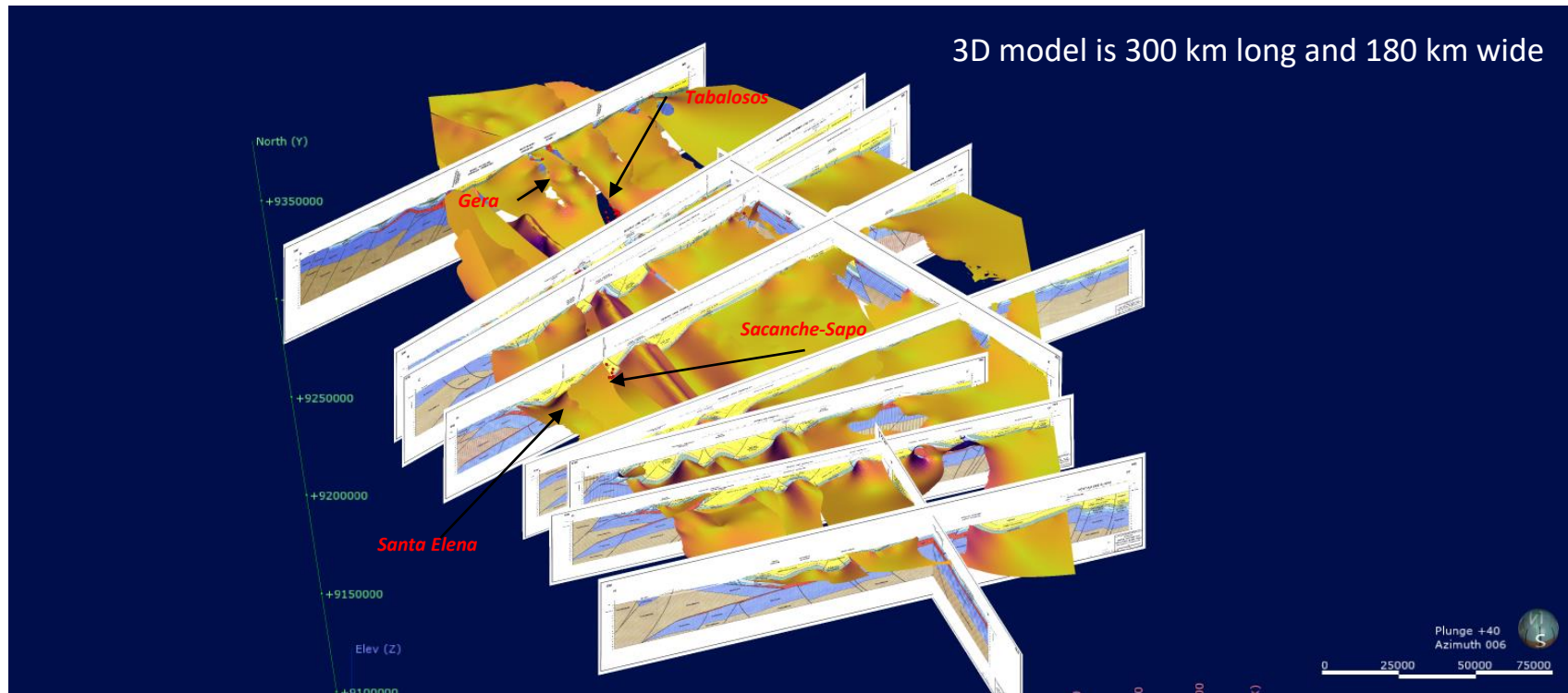
- Mobilization of metal-bearing oxidized brines by hydrological gradients and/or compression. Fluid focus by faults and salt diapirs linking fluid reservoirs with chemical and structural traps.
- 175-142 Ma: reactivation of basement faults during Jurassic extension. Initiation of salt diapirs.
- 142Ma: Initiation of Andean Foreland. Continued salt deformation.
- 24-12 Ma: Major Andean orogenic event.

## 4) Traps

- Redox boundary and erosional unconformity
- Major redox boundary in basin marked Grupo Oriente. Deposited in the foreland basin that marks Jurassic extension and initiation of Andean compression.
- Chemical and physical trap – hydrocarbon reductant
- Reduced facies trap of carbon matter and or pyrite

1: Tabalosos E and W  
2: Sacanche South  
3: Tabalosos South  
4: Gera, Sacanche North

# 3D Basin Scale Model



Dr. David Broughton, from PhD thesis on sediment-hosted copper deposits in Africa

**“Exploration for Central African Copperbelt-type bodies shares many similarities to the search for petroleum. Given this fact, seismic and/or the inversion of potential fields and electrical data to constrain subsurface geology may become common exploration techniques in the coming decades.”**



# SACANCHE COPPER TARGET



0.6m @ 8.7% Cu and 59g/t Ag

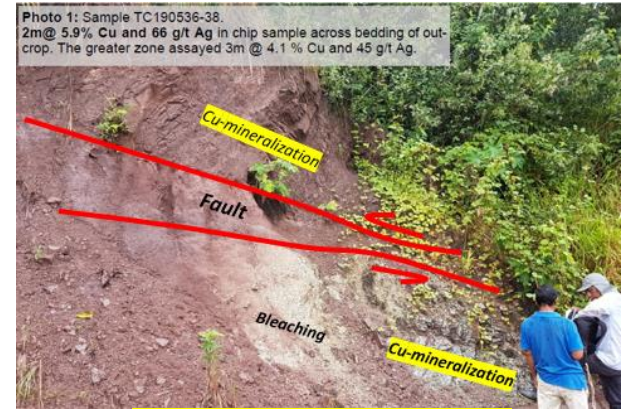
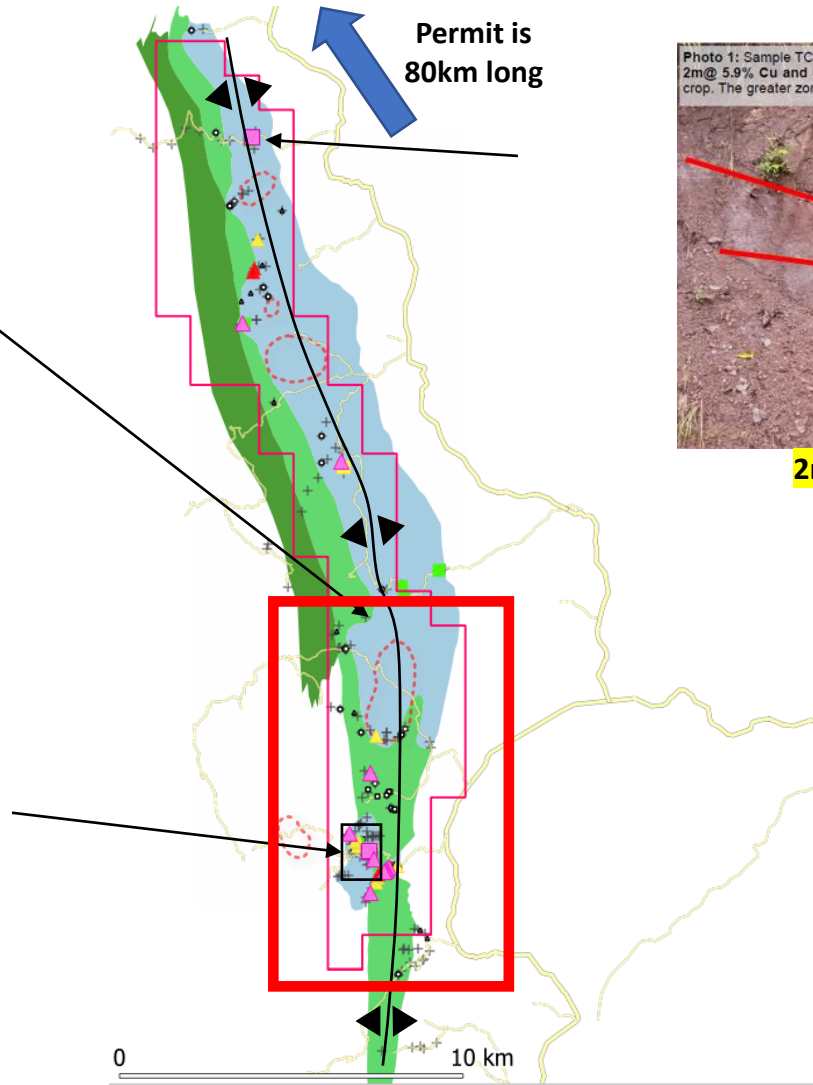


Photo 1: Sample TC190536-38.  
2m @ 5.9% Cu and 66 g/t Ag in chip sample across bedding of outcrop. The greater zone assayed 3m @ 4.1 % Cu and 45 g/t Ag.

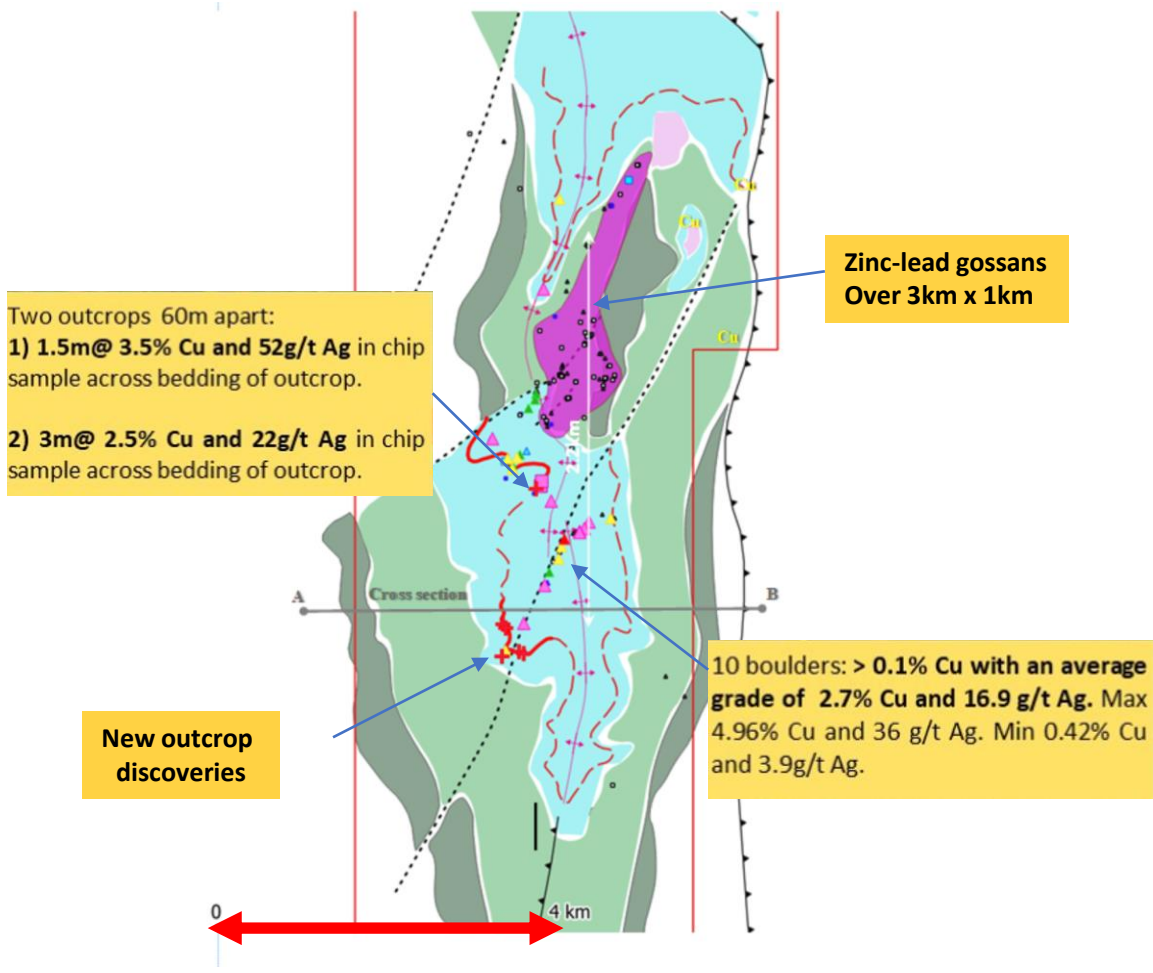
2m @ 5.9% Cu and 66 g/t Ag



3m @ 2.5% Cu and 22 g/t Ag



# DEFINING CONTINUITY OVER KM



Mineralization discovered in different parts of the stratigraphy

## 1. Cushabatay-hosted target Green rock on map

Analogue: Udokan, Russia: 2.8Gt @ 0.97% Cu 11.9g/t Ag

50-300m wide gossanous zone hosted by grey sandstone with elevated Zn-Pb (Cu). It has been mapped over 3km and inferred for 11 km strike. Structurally controlled by an anticlinal ridge caused by salt tectonics. Float up to 2.8% Cu and 50 g/t Ag 2km and 15 km away.

## 2. Sarayaquillo-hosted target Red line on map

Analogue: European Kupferschiefer

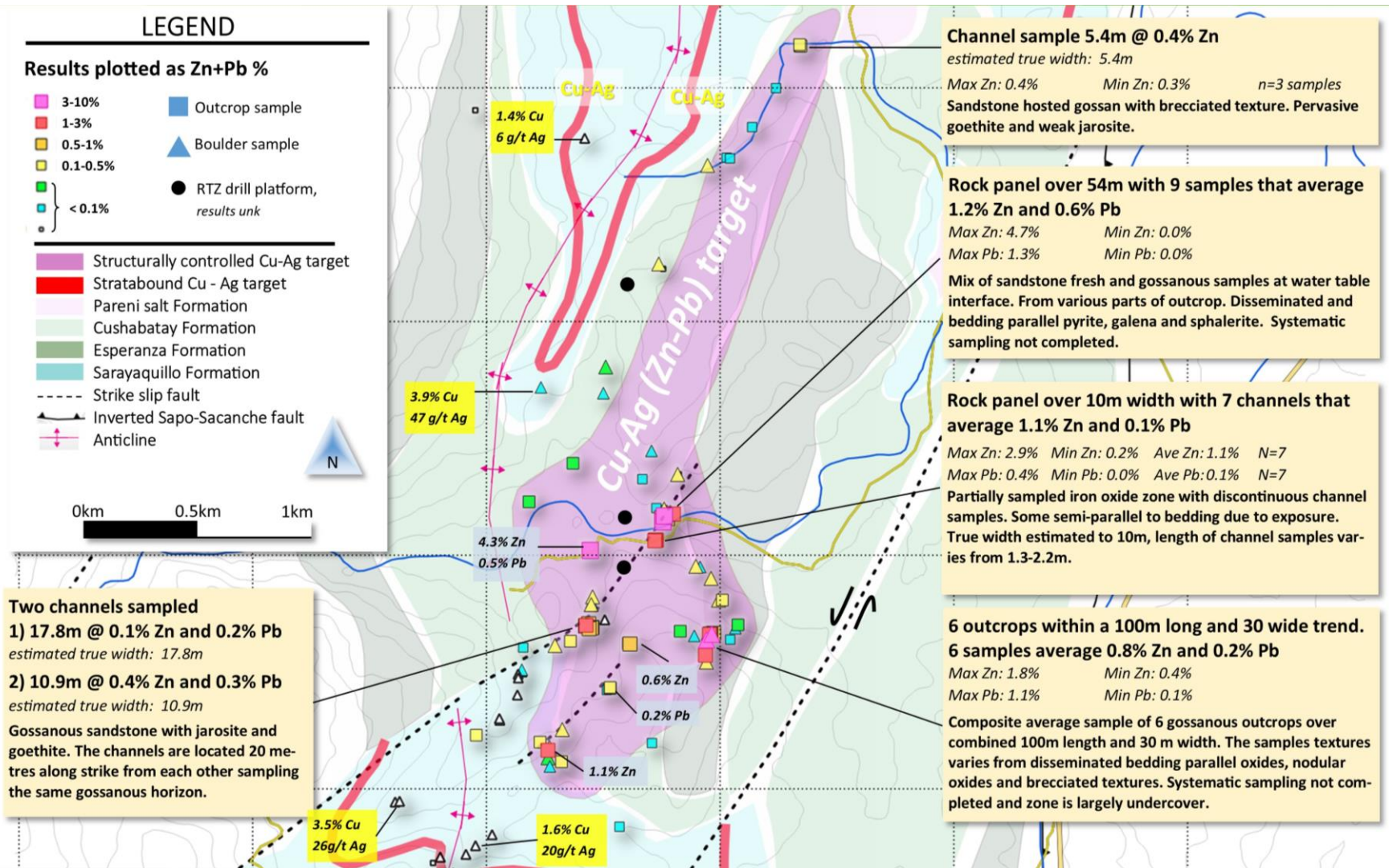
Mineralization discovered in outcrop. Similar style of outcrop/ boulders have been discovered over 100km of strike

- 3m @ 2.5% Cu and 22g/t Ag
- 1.5m @ 3.5% Cu and 52g/t Ag in chip sample across bedding of outcrop.

LEGEND		
■	outcrop sample	river / creek
▲	boulder sample	road / gravel road
FeOx	sample of quartzose gossan	Cushabatay hosted target
Zn-Pb-Cu	quartzose gossan with base metals	Sarayaquillo hosted target
Cu	copper mineralized sample	
grupo oriente	grey quartzose sandstone with +/- carbon	
sarayaquillo	red sandstone / siltstone / mudstone +/- carbon	
parana salt	inferred salt dome	



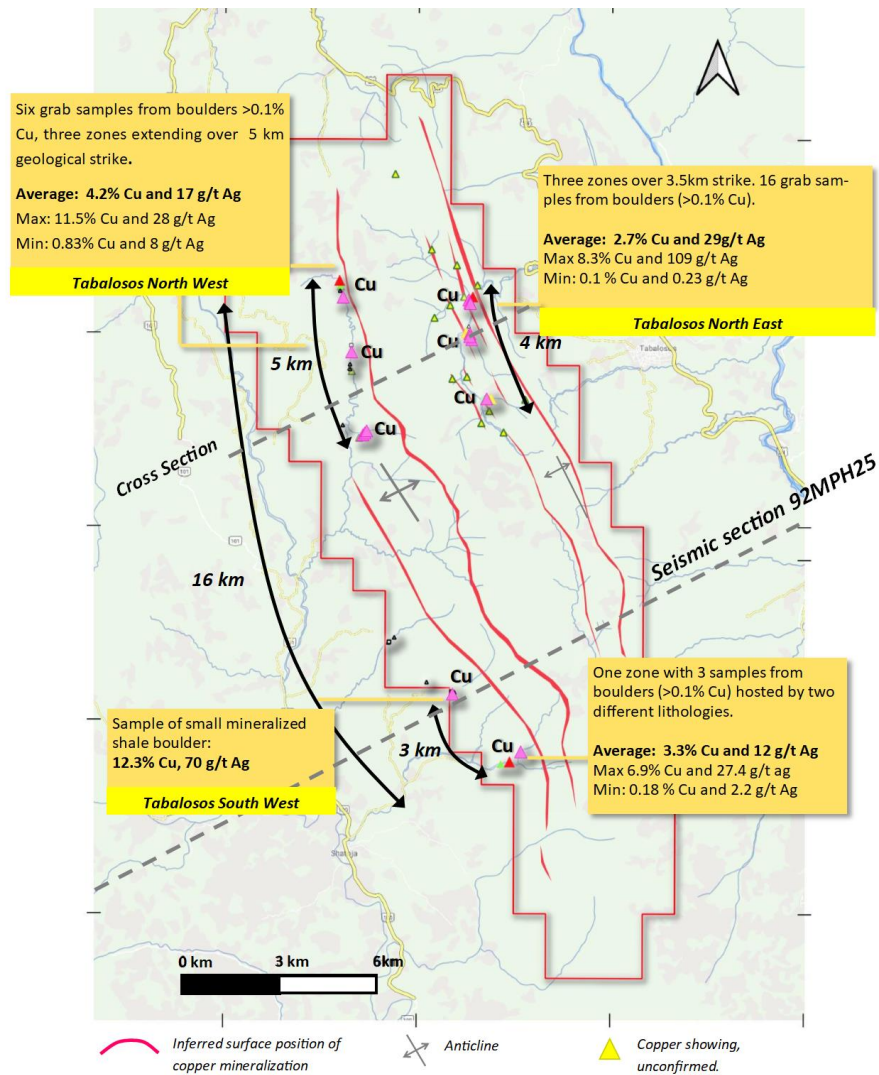
# Zoned and Transitional



# TABALOSOS – KEY RESULTS



80km north of Sacanche



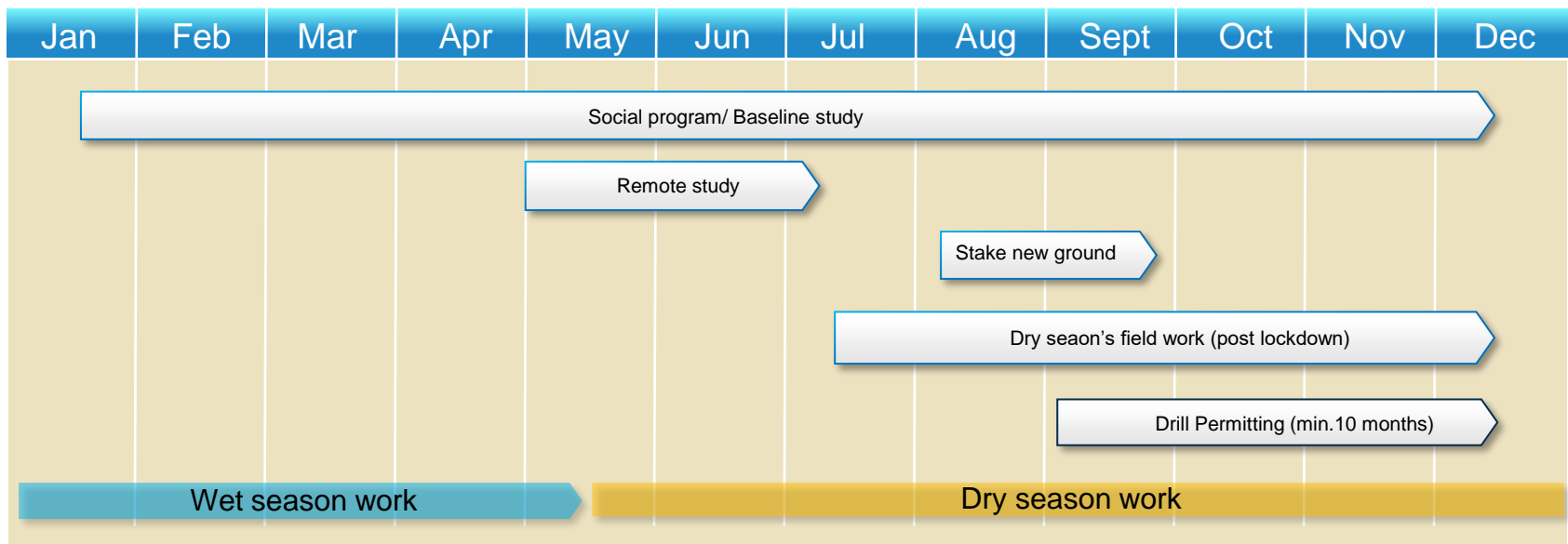


# TABALOSOS – KEY RESULTS



- Continue to build basin scale project with further field work
- Social program, drilling permitting
- Stream sediment surveys
- Soil surveys
- Remote sensing study
- Drill testing permitting
- Budget 2020 \$1.5M

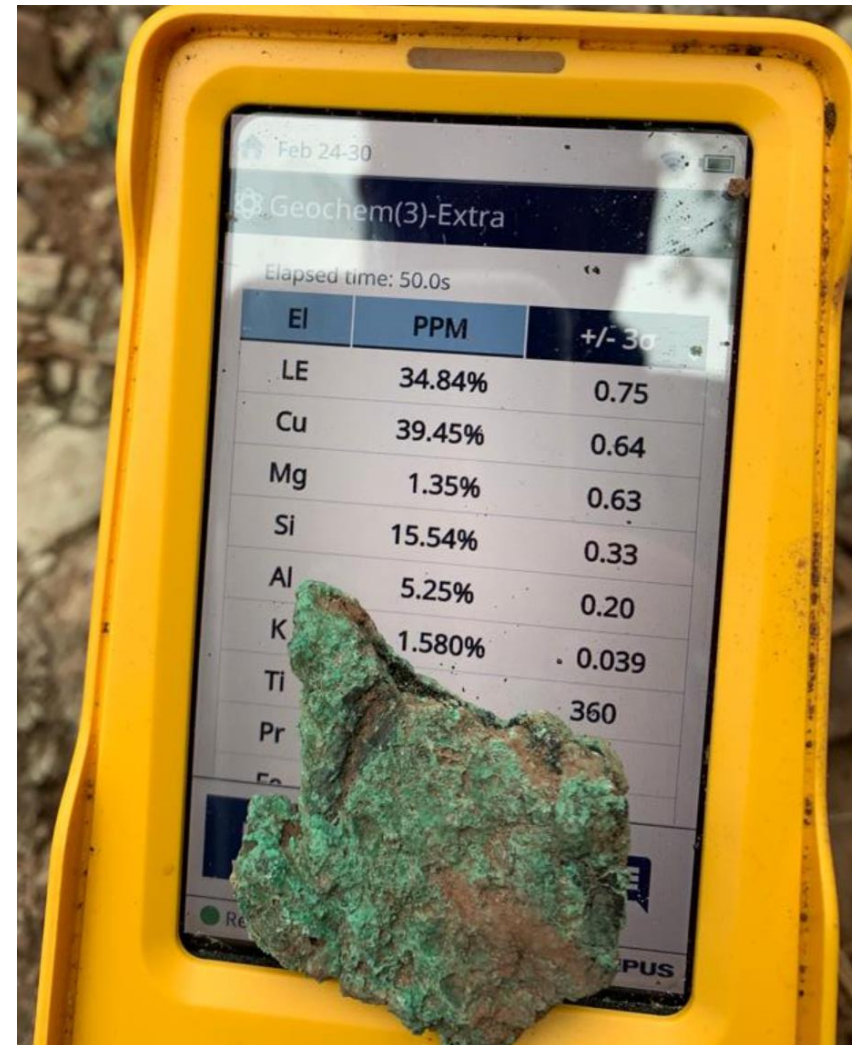
2020



# SUMMARY



- Opening up new search spaces via grassroots discovery
- Previously unexplored sediment-hosted high-grade copper-silver district identified in north-central Peru
- Similarities with sedimentary copper-silver deposits including the vast Kupferschiefer deposit in Eastern Europe, one of the largest copper districts on earth;
- Hannan recognized the exceptional potential for large copper-silver deposits in this part of Peru and has aggressively staked a commanding position over 660 sq km of prospective geology;
- Collecting data, making discoveries, creating value





# Contact Us



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# Appendices





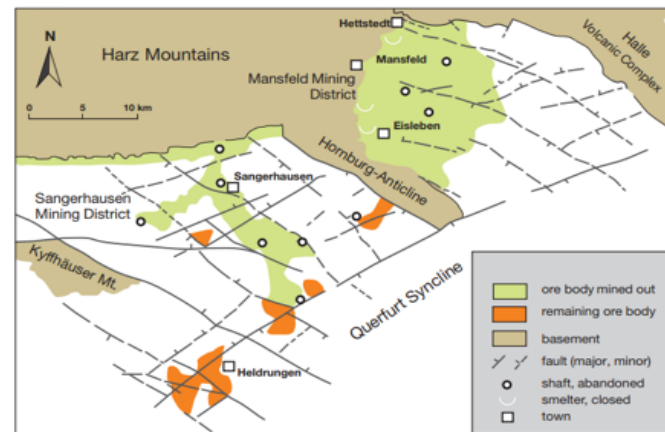
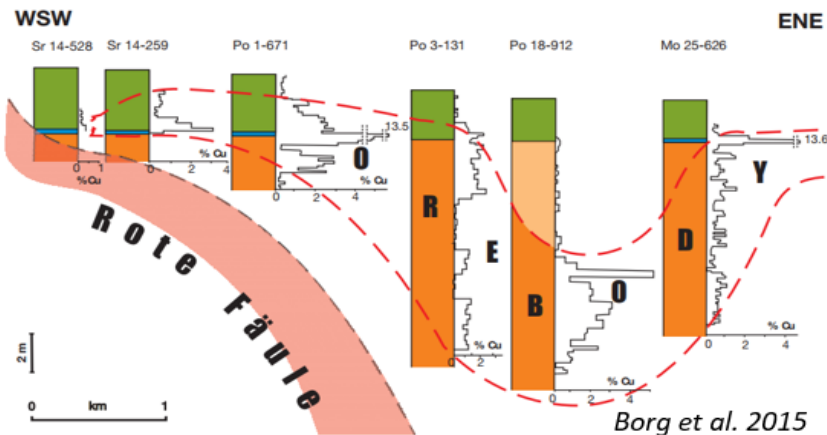
# The Kupferschiefer, Europe



## Analogue: The Kupferschiefer of northern central Europe :

- an Fe<sup>3+</sup> zone (hematite),
- through a locally developed precious metal (Au, Pt, Pd) zone,
- an always redox-proximal Cu zone (chalcocite, bornite, chalcopyrite),
- a locally overlapping Pb and Zn zone,
- into a distal Fe<sup>2+</sup> zone of preore, commonly framboidal or early diagenetic pyrite.

Orebodies can range in thickness from 0.3 metres up to more than 50 metres and occur at various stratigraphic levels



# Sediment Hosted Copper Model



The San Martin Project/Huallaga Basin has all the hallmarks of a major copper producing basin

To form significant deposits (after Hitzman):

San Martin, Peru

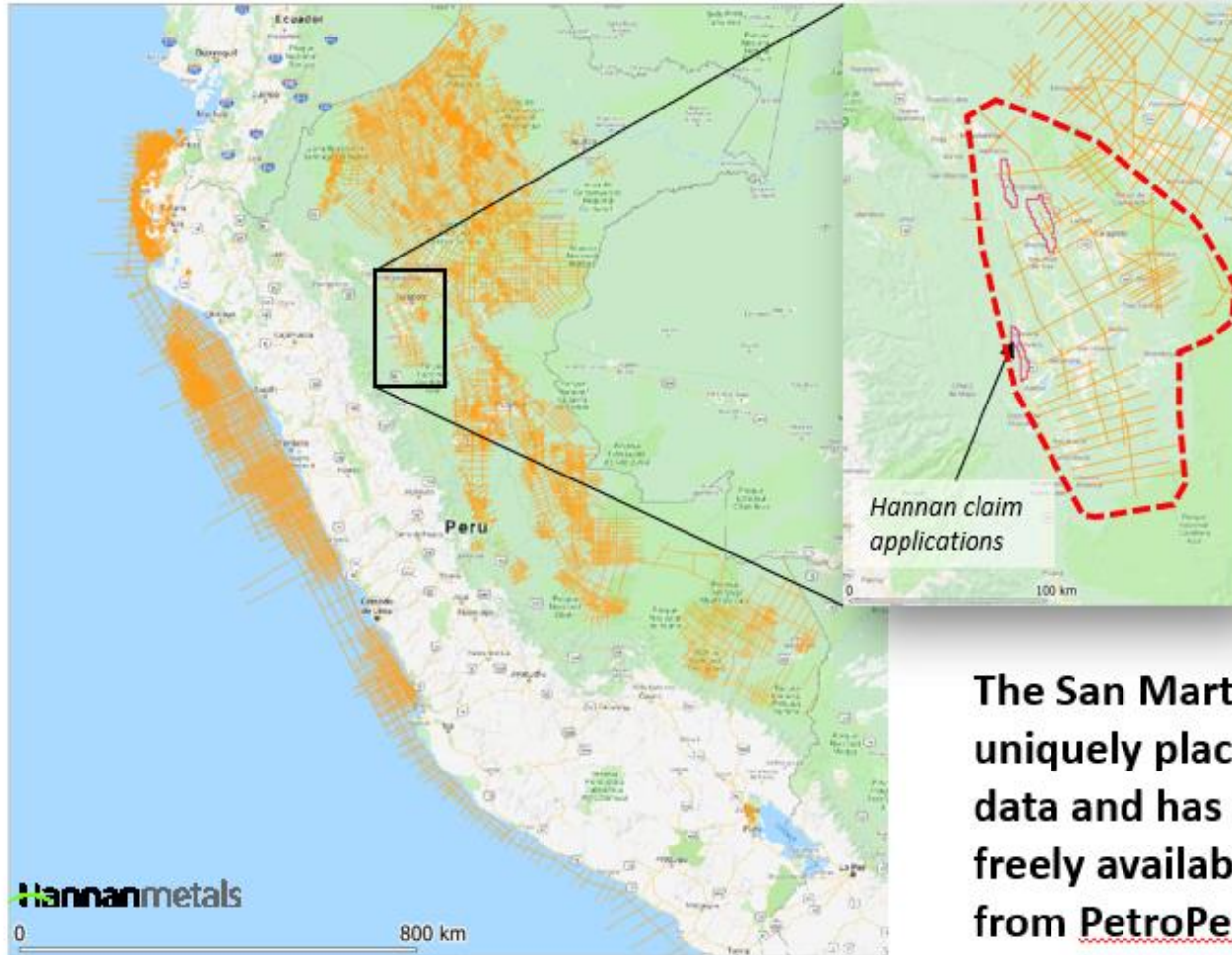
Stratigraphic Sequence	<i>highly oxidized metal source beds (red beds)</i>	<i>yes Mitu rift sequence</i>
	<i>incl: mafic or bimodal volcanic source rocks?</i>	
	<i>highly reduced facies to serve as metal traps</i>	
	<i>large amounts of contained reductant; in situ organic matter or hydrocarbons that have migrated within the basin</i>	<i>yes, several, from Triassic to Cretaceous age.</i>
Basin Architecture	<i>Evaporites with significant thickness</i>	<i>yes Parani salt</i>
	<i>saline brines capable of leaching and carrying metals</i>	
	<i>regional aquiclude, or seal, within the basin stratigraphy and allowing for the possibility of establishing a <u>longlasting intrabasinal fluid reservoir</u></i>	
	<i>Rift basin/intracratonic basins</i>	<i>yes,</i>
Host rock age	<i>basin architecture was relatively hydrologically closed</i>	<i>yes</i>
	<i>Basins of giants were relatively tectonically quiescent for long periods (100my) yes</i>	<i>yes</i>
Mineralization ages	<i>Post <u>archean</u></i>	<i>yes</i>
	<i>early diagenesis to times of basin inversion and metamorphism</i>	<i>not known</i>
Smoke	<i>Larger deposits early to late diagenesis?</i>	<i>not known</i>
	<i><u>postpeak-metamorphic</u> Cu-Mo-U mineralization</i>	<i>not known</i>
Unique Attributes of the Permian and Neoproterozoic	<i>Uraninite, a phase intimately associated with, but commonly postdating, stratiform copper mineralization</i>	<i>not known</i>
	<i>the lengthy time span of mineralization 100myr</i>	<i>not known</i>
	<i>Evaporites are a key feature of the basins hosting supergiant deposits</i>	<i>yes, <u>Parani Salt Formation</u></i>
	<i>major glacial events occurred affecting Seawater chemistry</i>	<i>yes, the basin probably similar age as Zechstein in Poland.</i>
	<i>quiescent for long periods</i>	<i>yes probably</i>



# Peru Seismic Coverage



Seismic data has been a key driver to develop an updated geological framework at San Martin project



*San Martin project area*

*Hannan claim applications*

The San Martin Project is uniquely placed with this data and has been made freely available to Hannan from PetroPeru.

# Huallaga Seismic



## Seismic coverage:

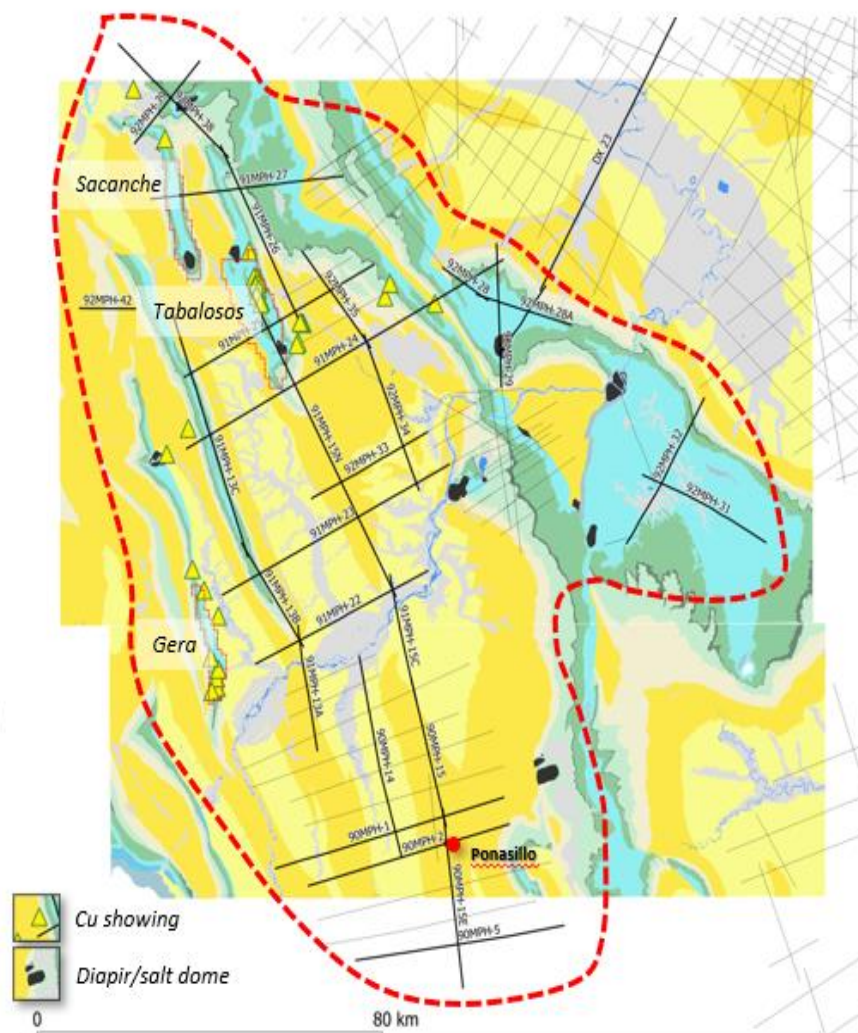
- 2,235 km of 2D seismic at Huallaga basin
- Shot between 1990-92
- One well (Ponasillo, depth 2700m, dry)
- Dark lines reviewed

## Data quality

- Overall data quality is variable, longer lines >40km crosscutting the geological trends usually image events well and to significant depth 9000m (need confirmation if data is in time or depth domain)

## Processing

- Unknown at this stage





# Land Use

