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Student Chapter Annual Report Cover Page

Submission Deadline: September 30th **Submit to: studentprograms@segweb.org**

Month/Year Reported: From 09-2022 (mm/yyyy) – To 09-2023 (mm/yyyy)

STUDENT CHAPTER: Check if update needed at segweb.org

Name: SEG STUDENT CHAPTER UNC ☑
University Affiliation: Universidad Nacional de Cajamarca ☑
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YouTube: ☐

Chapter Executive Committee *(in office during the time frame captured on this report) (type "Vacant" if position not filled)*: The new committee is reported on the Student Chapter Membership Information form (SCMIF).

	Name	E-mail
President:	Jorge Renato Diaz Ponce	jdiazp19_1@unc.edu.pe
VicePresident:	Mairely Judith Plasencia Vargas	mplasenciav20_2@unc.edu.pe
Secretary:	Lory Cristina Cotrina Sanchez	lcotrinas20_2@unc.edu.pe
Treasurer:	Bryan Axel Dobbertin Izquierdo	bdobbertini19_2@unc.edu.pe

Chapter Academic Sponsor: ☐ *Check if SEG Fellowship in good standing*

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Lisseth Marisel Roncal Julcamoro	lisseth.roncal@hotmail.es	

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Chapter Industry Sponsor (*not affiliated with the student chapter's institution)*: ☐ *Check if SEG Fellowship in good standing*

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Sponsoring Institution or Company(name): _____

NATIONAL UNIVERSITY OF CAJAMARCA

Professional Academic School of Geological Engineering

SOCIETY OF ECONOMIC GEOLOGISTS

(SEG)

ANNUAL REPORT - 2023

SEG STUDENT CHAPTER – UNC

Cajamarca - Peru

I. INFORMATIONAL DATA

1. CHAPTER OF STUDENTS:

Chapter Name: SEG Student Chapter - UNC

Chapter email: seg.unc19@gmail.com

Approval Date: September 5, 2019.

University Affiliation: National University of Cajamarca - Peru.

Chapter postal address: Av. Atahualpa N° 1050, Prof. Academic School of Geological Eng. Building 4J - Cajamarca - Peru.

2. CHAPTER EXECUTIVE COMMITTEE AND ADVISORS:

President: Jorge Diaz Ponce

Email: jdiazp19_1@unc.edu.pe

Vice-Chairman: Mairely Judith Plasencia Vargas

Email: mplasenciav20_2@unc.edu.pe

Secretary: Lory Cristina Cotrina Sanchez

Email: cotrinas20_2@unc.edu.pe

Treasurer: Bryan Axel Dobbertin Izquierdo

Email: bdobbertini19_2@unc.edu.pe

Other Executive Member: -

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Academic Advisor: Lisseth Marisel Roncal

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Industry Advisor: Daniel R. Marinov

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I. INFORMATIONAL DATA

II. MEMBERS OF THE SEG STUDENTS' CHAPTER

Members of the SEG Student Chapter - 2023		
	NAME	**POSITIONS SC SEG**
EXACUTIVE COMITTEE AND ADVISOR ROSTER	Roncal, Lisset Marissel	Academic Advisor
	Marinov R. Daniel	Industry Advisor
	Diaz Ponce, Jorge Renato*	President
	Plasencia Vargas, Mairely Judith*	Vice President
	Cotrina Sanchez, Lory Cristina*	Secretary
	Dobbertin Izquierdo, Bryan Axel*	Treasurer
MEMBERS	Diaz Ponce, Jorge Renato*	Public relations
	Celis Quispe, Roberto Carlos*	
	Diaz Sangay, Davis Nathanael*	
	Cueva Boyd, Gustavo*	
	Salazar Julca, Victor Silverio*	
	Zanini Nuñez, Luis*	
	Plasencia Vargas, Mairely Judith*	Communication and Marketing
	Cabrera Estela, Ana Lucia*	
	Huamán Blanco, Danny Jhoel*	
	Melendez Herrera, Jhosep*	
	Cueva Cueva, Mary Yuri*	
	Dobbertin Izquierdo, Bryan Axel*	Logistics team
	Bringas Vigo, Brayan Martin*	
	Estrada Torrel, Luis Omar*	
	Quispe Bardales, Julio Cesar*	
	Vasquez Vasquez, Carlos Martin*	
	Cotrina Sanchez, Lory Cristina*	Academic affairs
	Casas Azañero, Mayra*	
	Chuquiruna Chunque, Marcos Isaias*	
	Cueva Huamán, Ivan Edinson*	
	Villanueva Tantaleán, Franklin Jhair*	
	Vásquez Fernández, Ruth*	
	Verastegui Flores, Samuel*	

(*) SEG Student Members 2023

III. SUMMARY OF ACTIVITIES

1. Sumary of activities (January – October 2023)

This year the activities of the student chapter were not only developed with members belonging to the chapter, but also with other universities, not only in Peru but also abroad, leaving us with a very productive year. Courses were developed, both theoretical and practical, as well as workshops and technical visits to various mining companies. The following lines summarize all the activities carried out during the year.

- **Course:** "**Introduction to geology and exploration of IOCG systems"**
  Instructor: Ing. Juan Carlos Bazán Sotomayor
  Theory: | Monday 27 March | 11:00 am
  Cabinet: |Monday 27 March | 2:00 pm

The course called "Introduction to Geology and Exploration of IOCG Deposits" dictated by the Engineer Juan Carlos Bazan Sotomayor, covered much of the coastal region of our country, specifically the area of Marcona south of Lima, this course was developed in two parts, the first being the theoretical part, where we recognize differences between IOCG systems with other systems, in addition to the mineralogy, alteration and mineralization characteristic of this type of deposits. In the second part, we were able to describe characteristic samples of this kind of deposit, highlighting the not so well known "Ocoita".

Figure 1. Postcards of what was the development of the theoretical-practical course "Introduction of Geology and exploration of IOCG systems"

- **Field Trip: "Geological mapping of the colpayoc porphyry"**

Theme: Surface mineralization and alteration reconnaissance.

Field Trip: | Thursday, April 20 | 7:00 am

The field trip called "Geological mapping of the Colpayoc porphyry" consisted of a local scale geological mapping of the Colpayoc porphyry system together with the intermediate sulfidation vein and mantle system, where lithologies and structures favorable for the development of mineralization in the area were recognized, such as dacitic and andesitic domes, in addition to identifying the hydrothermal alterations present such as phyllic, propylitic, potassic and advanced argillic alteration.

Figure 2. Postcards of the development of the non-directed field trip called "Geological mapping of the Colpayoc Porphyry".

- **Webinar: "The eocene Magmátic arc and its relationship with the mineral deposits of the miocene in Northern Perú"**
  Instructor: Ph. D. Miriam Mamani
  Theory: | Friday, April 28 | 6:00 pm

The webinar entitled "The Eocene Magmatic arc and its relationship with the mineral deposits of the Miocene in Northern Peru" given by Ph. D. Miriam Mamani, dealt with the relationship between the Eocene magmatic arc and the Miocene mineral deposits in Northern Peru. It was pointed out that the Eocene and Oligocene magmatic systems are important sources of contaminant rocks for the Miocene mineralized systems. In addition, the relevance of magma and mineralization dating studies throughout Peru was discussed, focusing on the cortical architecture and structure of magmatic systems. Finally, mention was made of the need to investigate ignimbrites in northern Peru and their relationship with mineralization.

Figure 3. Flyer of the webinar entitled "The Eocene magmatic arc and its relationship with the Miocene mineral deposits in northern Peru."

- **Course: "Mineralization styles of the Pasco Mining Complex (UM – Porvenir – Atacocha)"**
  Instructor: Ing. Cristhian Mendoza
  Theory: | Thursday, May 04 | 10:00 am

  The course entitled "Mineralization styles of the Pasco Mining Complex (UM - Porvenir - Atacocha)" by engineer Cristhian Mendoza, largely covered the regional geology of the Cerro de Pasco mining district in the central Andes of Peru, where it was established that the mineralization styles of the Pasco Mining Complex are the result of the interaction of different geological processes, Of which Atacocha and Porvenir are skarn type deposits, with distal Zn and Pb (+/-Au) and proximal Zn+/-Cu mineralization, associated to hypoabyssal bodies of quartz-andesitic and andesitic composition. Also mentioned were recent explorations of mineralized systems such as tectochnic breccias with late hydrothermal reactivation and an intermediate sulfidation epithermal system that are mainly controlled by the Milpo - Atacocha fault (N-S).

Figure 4. Photos of the course "Mineralization styles of the Pasco Mining Complex (UM - Porvenir - *Atacocha)" by Engineer Cristhian Mendoza.*

- **Course: "3D Geological Modeling"**

  Instructor: Ing. Moises Machuca

  Theory: | Friday, May 05 | 11:00 am

  Practice: | Friday, May 05 | 2:00 pm

The course entitled "3D Geological Modeling" by Engineer Moises Machuca consisted of two parts, being the first theoretical part where the main fundamentals of 3D geological modeling, characteristics of drillhole data: collar, survey, lithology and assays, data cleaning, generation of geological domains based on lithology, alteration and mineralization, finally the workflow when performing the 3D geological modeling were indicated. The second part consisted of geological modeling using drill hole data, topographic information, surface geological mapping and N-S and E-W geological sections.

Figure 5. Photos of the course "3D Geological Modeling " by Engineer Moises Machuca

- **FIELD TRIP: "Cajamarca a world to discover"**

  The objective of this activity was to inform the members of the SEG-UCE and SEG-UNSA student chapters about the regional geology of Cajamarca and its relationship with the main mining districts in the area, such as the Hualgayoc, Yanacocha and Algamarca mining districts. Therefore, a technical visit to these areas was carried out during 5 days.

Figure 6. Program of activities for the field trip: "Cajamarca a world to discover".

Day 01. "Introduction to the geology of Cajamarca and Metallogeny of the Huagayoc mining district"

Instructors: Dr. Crispín Zenón Quispe Mamani and Ing. Lisseth Roncal Julcamoro

Presentation 01 – Introduction to the geology of Cajamarca: | Saturday, August 12 | 4:00 pm

The Field Trip held from August 12 to 16 began with a summary presentation by our school representative and academic advisor. Dr. Crispín Zenón Quispe Mamani illustrated the geology of Cajamarca emphasizing the fact that we are in a sedimentary basin and that the stratified units cover the lower and upper Cretaceous; in this presentation he tried to explain the presence of hot springs corresponding to Baños de Inca.

Presentation 02 – Metallogeny of the Hualgayoc Mining district: | Saturday, August 12 | 5:00 pm

Lisseth Roncal Julcamoro showed us in a didactic way the geology and metallogeny of Hualgayoc, a district of great interest whose orogeny was affected by tectonic events (Peruvian, Inca, Quechua I and Quechua II phases) generating structural controls that controlled the emplacement of volcanic and intrusive activity, in post compressional extensional regimes. In this way we have some of the porphyry, skarn and epithermal deposits such as: Tantahuatay , Antakori , Cerro Corono , etc.

Figure 7. Welcome to the members of the SEG -UCE Student Chapter.

Day 02. "Mapping of the Hualgayoc Mining District"
Instructor: Ing. Lisseth Roncal Julcamoro
Field Trip: | Sunday, August 13 | 5:00 am

The activity corresponding to day 2 of the field trip: "Cajamarca a world to discover" entitled "Mapping the Hualgayoc Mining District" consisted of the identification of the geology, which is composed of a sequence of Lower and Upper Cretaceous clastic and calcareous sedimentary rocks, which were affected by compressional events of the Andean orogeny, generating folds and faults of NW-SE Andean, NE-SW trans-Andean orientation and tensional faults of N-S and E-W orientation. The mineralization of the district seems to be related to the magmatic reactivation after the Quechua I phase, which gave rise to multiple pulses of intrusion, volcanism and hydrothermal activity, with the development of several ore deposits, such as Cerro Corona (porphyry), Quijote,

Cerro las Gordas, Cerro Jesús (replacement mantle and intermediate sulfidation epithermal veins), Cerro San José and Tantahuatay (high sulfidation epithermal).

Figure 8. Reconnaissance and mapping of the Hualgayoc Mining District

Day 03. "Technical visit to Yanacocha Mining Company"

Instructor: Ing. Yackory Bustamante.

Visit: | Monday, August 14 | 7:00 am

The activity corresponding to day 3 of the field trip: "Cajamarca a world to discover" entitled "Technical visit to Yanacocha Mining Company" was aimed at learning about the current status and progress of this important mining project, which seeks to develop the first phase of the sulfide deposits in the largest gold mine in South America, located in the Cajamarca region of Peru. The visit began with a general presentation of the project, the main pits and plants, followed by a visit to the Cerro Negro pit, where a large part of the work carried out as a mine closure plan was shown. Finally, the Yanacocha exploration team was visited, which was in charge of Engineer Yackory Bustamante, who explained the activities and results of the search for new gold and copper deposits in the area, using geological, geochemical and geophysical methods. Photographs were shown of some examples of the rock and soil samples that are analyzed in the laboratory, as well as the maps and three-dimensional models that are prepared to identify the areas with the greatest mineral potential.

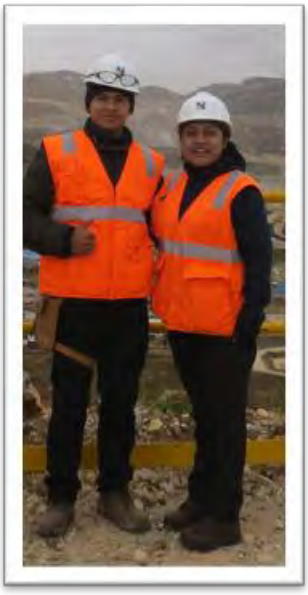

Figure 9. Technical visit to the Yanacocha mining project facilities - Newmont

Day 04. "Technical visit to the log room – Antakory"

Instructor: Ing. Cesar Cabrera

Visit: | Thurday, August 15 | 8:00 am

The activity corresponding to day 4 of the field trip: "Cajamarca a world to discover" entitled "Technical visit to the log room - Antakory" in charge of Engineer César Cabrera consisted of a visit to the log room of the Antakori Project, where we obtained information about the type of deposit. Initially, we identified the geological formations: Farrat Formation, Inca Formation and Chulec Formation. Four specific phases related to the formation of the deposit were also identified: Porphyry-Skarn, Porphyry-Breccia, High Sulfidation Epithermal and Base Metal Carbonate.

Of the mentioned phases, we note in the first one a predominantly retrograde alteration due to the mineralization of epidote, chlorite, pyrite, chalcopyrite, and abundant veinlets. However, prograde alteration can also be identified due to the presence of garnets. Next, we observed porphyry-breccia, which consists of marble clasts supported by pyrite cements. In addition, propylitic alterations were observed in the porphyry.

The epithermal phase of the deposit has been recognized mainly by the presence of enargite and silicification in some sections.

Figure 10. Visit to the Antakori project log-in room

Day 05. "Subterranean mapping in vetiform systems in Algamarca"

Instructor: BS Mining Company

Visit: | Wednesday, August 16 | 4:00 am

The activity corresponding to day 5 of the field trip: "Cajamarca a world to discover" entitled "Subterranean mapping in vetiform systems in Algamarca" in charge of the company BS was carried out in the mining work Nº2 Nueva Esperanza - Trinidad which corresponds to an epithermal deposit of intermediate to low sulfidation with mineralization of polymetallic veins, oxides and sulfides, which are located in silico-clastic rocks of the Goyllarisquizga Group, during the visit it was possible to obtain information on the operations carried out in mine such as: extraction, loading and stockpiling, on the other hand, with respect to the geological issue was identified the type of host rock, the main structures that control mineralization and mineral zoning corresponding to sulfides (pyrite, chalcopyrite, bournite), oxides (calcantite, chrysocolla, azurite) and transition to epithermal (enargite, tenantite).

Figure 11. Visit to Algamarca Underground Mining Unit, Labor N°2, Nueva Esperanza – Trinidad

2. Regular Meetings

Regular meetings with all members were held monthly to organize the different activities of the Chapter, discuss future plans and also report on the development of the SEG – UNC Student Chapter

IV. FUTURE PLANS

For 2024 the Chapter the Student Chapter SEG of the University of Cajamarca has considered to continue with conferences, courses, seminars, field trips, etc; in addition to the development and integration of field trips with students from other universities in Peru since this year also develops the congress of students of Geological Engineering in our region. With this background and with the objective of expanding our theoretical and practical knowledge, as well as informative talks for students of our university or others that motivate them to be part of the SEG.

We plan to continue with the monthly meetings of the Student Chapter to organize the activities that will be carried out throughout the year, these meetings are not only oriented to develop activities in our region but to explore all the Peruvian territory and to be excellent connoisseurs of our National geology.

In addition to all this, the field trip presented as a project to the SEG, for which we were granted an economic subsidy and which is still pending, is still pending.

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