

## THE EBSD IN THE SEM LABORATORY OF THE GEOLOGICAL SURVEY OF BRAZIL FROM THE EASTERN AMAZONIAN REGION

Marcelo L. Vasquez  
Geological Survey of Brazil – CPRM, Belém – PA, Brazil

The Geological Survey of Brazil – CPRM has two SEM with EBSD, a laboratory of the CPRM branch of Belém (LAMIN-BE) located in the northern of Brazil and another in partnership with University of Brasília. The LAMIN-BE has cut and polishing facilities therefore we have invested in mechanical polishing. The team of SEM is composed by a geoscience researcher (Dr geologist) and geoscience analyst (MSc. chemical engineer). The focus of this laboratory is the research of geological samples of mineral deposits, their host rocks and rocks that have undergone strain deformation and metamorphism. We have selected samples to a collection in order to practice EBSD analysis. The polishing sections were prepared as thin sections, cold and hot embedded. To compare metamorphic fabrics were selected a metapyroxenite and amphibolites formed during the high grade metamorphic events related to the 2.1 Ga continental collision in the eastern Amazon Craton. The metapyroxenite has a polygonal granoblastic fabric (thermal metamorphism) while the amphibolites have nematoblastic fabric (regional metamorphism). We have also selected samples of iron ore deposits from the Carajás Mineral Province. These deposits are banding iron formations that have metamorphic and ductile structural control. The orientation of quartz and hematite grains may reflect a progressive recrystallization. The gold deposits from the Tapapós Gold Province have a structural control. The gold mineralization is associated with sulfides hosted in quartz veins which are controlled by shear zones. The orientation of quartz may reflect the regional deformation. The chromitite deposits of the Troia Massif in the northeastern of Brazil may have a magmatic control. The chromite layers were formed by crystal settling but the grains can undergo post-magmatic recrystallization. Research groups of universities from the Amazonian region have shown interest in EBSD analysis. Besides geoscience researches partnerships with research groups of science of materials (eg. gold jewelry alloys and stainless steel welding of pipelines) are welcome.

---

Marcelo Lacerda Vasquez was graduated in geology in 1989 and took master science degree in geochemistry and petrology in 1997 from Federal University of Rio Grande do Sul (UFRGS), he doctorated in isotope geochemistry and geochronology in 2006 from Federal University of Pará (UFPA). He has worked in the Geological Survey of Brazil – CPRM since 1994 with geological mapping of the eastern Amazonian region. Nowadays he is managing the SEM laboratory of the CPRM branch of Belém (LAMIN-BE).