1. Introduction
The Ecuadorian Andes, located in the north of South America, comprise the Western and Eastern (Real) cordilleras. The Western Cordillera comprises largely continental rocks related to the Cretaceous to Tertiary accretionary and arc-trench subduction, whereas the Eastern cordillera is dominated by oceanic material of the Pacific basement. The basement uplift and exhumation in the Ecuadorian Andes is related to the compressional tectonics that were responsible for the regional compressional tectonics that were responsible for the regional compressional tectonics that were responsible for the basement uplift and exhumation in the Ecuadorian Andes. This study aims to improve the understanding of the substructure of the Western Cordillera of Ecuador between 0° and 1° N using aeromagnetic data (Figure 1). Specifically, this research will focus on: (1) Understanding the regional compressional tectonics that were responsible for the basement uplift and exhumation in the Ecuadorian Andes; (2) identifying the structural framework for mineral exploration in order to provide guidance for new exploration programs.

The Northern Andes are different from the rest of the Andean orogenic belt because of the presence of mafic oceanic rocks forming the basement of the coastal foreland and the Inner Andes regions of Ecuador and Colombia (Yáñez et al., 2009). The lithostratigraphy of the study area comprises mainly ocean floor (0-1° N) (Figure 1). The Northern Andes are different from the rest of the Andean orogenic belt because of the presence of mafic oceanic rocks forming the basement of the coastal foreland and the Inner Andes regions of Ecuador and Colombia (Yáñez et al., 2009).

2. Data and Methods
The data used in this study were obtained from the FALCO Database (2004-2006). The data used in this study were obtained from the FALCO Database (2004-2006). The data used in this study were obtained from the FALCO Database (2004-2006). The data used in this study were obtained from the FALCO Database (2004-2006).

3. Results
Four main different textural types (Figure 3) can be identified along the study area using multiple derivatives and local wavenumber transforms. These textural types are: (1) linear; (2) chaotic; (3) semi-automatic; and (4) theoretical evolution from crustal fragments (I) to transpressional regime (III)

4. Structural Analysis
The fault population analysis (FPA) from the interpreted lineaments shows a gradual cut-off between 6 and 7 km in length, and the length and width distributions follow a power-law distribution (Figure 4). The fault length relationship fits or correlates better using double power law distributions with a 0.7 to 1 km range. Therefore, the cut-off could be related to a more complex geometry, and seems to be continuous along the study area using multiple derivatives and local wavenumber (LW).

5. Discussion
This study proposes a redefinition of the geometry and characteristics of three main fault systems: WFS, CFS, and LFS. They have been interpreted as isolated fault segments. The WFS is the most prominent and is mostly comprised of dextral faulting in the eastern Cordillera. The CFS presents a complex geometry, and seems to be continuous along the study area using multiple derivatives and local wavenumber (LW). The LFS is the least well-defined and is mostly comprised of sinistral faulting in the western Cordillera.

6. Conclusion
Aeromagnetic data have been employed in this study as a potential tool to explore sub-surface due to the changes in the magnetic properties of the ocean floor, continental shelf, inner and outer continental shelves, and the continental slope. Therefore, they are essential for understanding the structural evolution of the study area and the substructures and their implications for the structural evolution of the study area. Consequently, the aeromagnetic data provide a better understanding of the geology and structures within the study area.

Acknowledgements
The authors gratefully acknowledge the financial support from the FALCO Database (2004-2006). The authors gratefully acknowledge the financial support from the FALCO Database (2004-2006). The authors gratefully acknowledge the financial support from the FALCO Database (2004-2006). The authors gratefully acknowledge the financial support from the FALCO Database (2004-2006).

References

Figure 1: Cross-section through the study area showing the main geological units and the aeromagnetic lineament data. Topography is included on top of the study area.