

GEOPHYSICAL EVIDENCE FOR THE LOCATION OF CONCEALED TERTIARY VOLCANIC VENTS IN NORTHWESTERN CHUBUT PROVINCE, ARGENTINA

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In the northwestern sector of the Chubut Province, Argentina, basaltic flows overlie an extensive sequence of acidic rocks. They jointly constitute the bimodal Pire Mahuida Volcanic field developed during Miocene times. This succession is thought to be related to an extensional regime located between the intraplate basaltic domain of the Somuncura Plateau and the eastern end of the Andean Arc. Extensive field mapping of the volcanic units combined with laboratory work were carried out in the study area, after which the results of an airborne magnetic and gamma ray spectrometry survey have allowed the authors to adjust the detailed map of the volcanic outcrops of the region and to determine concealed volcanic centers. On the basis of the contrasting contents of potassium, uranium and thorium, the three radioelements involved in the gamma ray spectrometry survey, the basalts (low K-U-Th) and the rhyolites (high K-U-Th) could be clearly distinguished. The location of a number of vents have been found for the first time in this region in terms of the interpretation of the aeromagnetic maps. It should be mentioned that in addition to the ordinary presentation of the magnetic grids (i.e. total magnetic intensity maps), the map of the analytic signal of the total magnetic intensity has been crucial in delineating the volcanic centers. At least four volcanic centers of 60-70m have been found to be centered at 42°18'01''S.L./68°51'27'' W.L., 42°15'35''S.L./68°45'32'' W.L., 42°05'48''S.L./68°40'43'' W.L. and 42°04'44''S.L./68°34'54'' W.L., the last two being displaced by faults (evidenced as magnetic lineaments).