The study area is located to the east of the current volcanic front, characterized by intra-arc and back-arc volcanism. Geochronological and paleomagnetic results from 11 localities are presented, which comprise the Rancahué, Michacheo, Tipilihuque and Hueyeltué Formations, the informally named Basalto Zapala, Basalto Macho Viejo, Basalto Los Mellizos and the Chapualitense inferior. In general they present porphyry to sub-ophytic textures in to intergranular groundmass, with phenocrysts of Olivine. The chalcographic studies indicated the presence of Magnetite in form of titanomagnetites interlayered with to ilmenite and in some cases to Hematite. In other cases, sporadic Hematite with dismissal to Ilmenite, and of Pseudobrookite together with Titanohematite was seen. Studies of IRM and back-field indicate that the main carrier of the magnetization would be the Magnetite accompanied by scarce Hematite. Hysteresis loop studies at ambient temperature and low temperatures (-190°C) establish the presence of a mixture of multi-domain and pseudo-single-domain grains. In other cases are seen particles that be in the size range pseudo-single-domain or they would correspond to a mixture of single-domain particles with superparamagnetic. Therefore, our results allow the interpretation that the Michacheo and Rancahué Formations constituted the middle to late Miocene volcanic arc, and indicate the change in the convergence angle of the Nazca plate with the continental margin, from significantly oblique to almost orthogonal. This convergence style continued, with minor changes, in the Mio-Pliocene. During this time interval, many basaltic extrusions (Tipilihuque Formation, Zapala, Macho Viejo and Los Mellizos Basalts) took place as part of this arc.