Several Miocene large bimodal complexes aligned along WNW-ESE trending belt were built over the mostly Oligocene Somún Curá basaltic plateau, in northern Argentine Patagonia. Trachyte- basaltic associations related to big cauldrons are typical of this post plateau stage. Extensive field mapping and petrologic studies were carried out on Apas Volcanic Complex (AVC), a Neogene (24-19 Ma) bimodal volcanic center. The volcanic edifice has a sub-circular shape with 32 km diameter and shows an asymmetric profile (1100 m N flank-800 m S flank). The central area is composed of trachytic volcanics related to two effusive phases (a-olivine trachyte and b- quartz trachyte lavas). Mesosilicic pyroclastic flows are interlayered in the NE sector, whereas rhyolite lavas displaying flow banding occur interbedded in the SW area of the central zone. The most characteristic feature of AVC is the radial pattern of trachytic dikes emanating from the center of the volcano. Outer concentric zone is represented by a basaltic facies (alkaline basalts) which constitutes the main flanks of the structure. Aligned strombolian small cones can be distinguished in this sector. Peripherically, in the northern caldera rim, two trachytic lava domes occur: Cerro Colorado (NE) and Marabella (NO). A regional NW-SE lineament controls the southeastern caldera rim. Based upon geochemical studies, trachytic and basaltic volcanics define a bimodal alkaline suite with an intraplate signature. The AVC, like others post plateau complexes, would be related to an extensional environment, as a consequence of major plate reorganization occurred along Pacific margin of the South America plate.