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VOLCANOES OF THE CENTRAL ANDES

With 219 Figures, 90 in Colour

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43. Nevados Ojos del Salado

Chile/Argentina

Synonyms: None

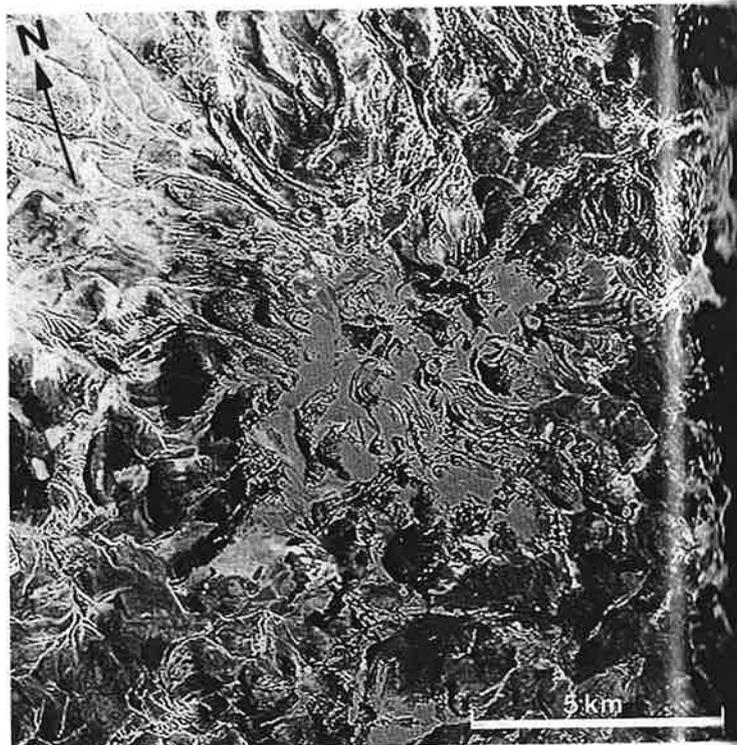
Location: 27°07'S 68°33'W

Type: Complex

Summit Elevation: 6887 m

Edifice Height: 2000 m

Category: 2



Structure/Evolution

Nevados Ojos del Salado is the highest active volcano in the world and is situated in the centre of an east-northeast striking chain of volcanic centres that extends for more than 80 km (Figs. 43.1 and 43.2). Despite its remote location on the Chilean-Argentine border east of Copiapo, its lower slopes are relatively more accessible than other centres in the region, since an international road crosses the frontier between Chile and Argentina via the Paso de San Francisco, 20 km north of the volcano. There have been reconnaissance studies of the region by *Gonzalez-Ferran et al.* (1977) and *Baker et al.*, (1987), who suggest that the complex probably has a history dating back to the late Pleistocene. Astronomers searching for an high altitude observatory have also reconnoitred the volcano as a potential site (*Brunier*, 1989).

The complex has an oval basal plan, elongated in the east-west direction and covers an area of about 70 km². Thick pumice deposits cover the lower slopes of the complex and were identified as being the earliest phase of activity from this complex by *Baker et al.* (1987), who also postulated that they may be related to the formation of an ancestral "somma" caldera described by *Gonzales-Ferran et al.* (1985; Fig. 43.3). There are clearly extensive young pyroclastic deposits, but their source and

Fig. 43.1. TM image and topographic map of the Nevados Ojos del Salado. The light blue is snow covering much of the summit area, the dark is lava and scoria deposits, and the light material in the north is pyroclastic material and ignimbrite. Numerous craters and cones are present but are hard to resolve satisfactorily because of snow saturation.



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Fig. 43.2. TM band 4 image of the Ojos del Salado complex. The image is less saturated than the TM image and slightly more detail can be seen. Arrows indicate some of the major centres on this complex.

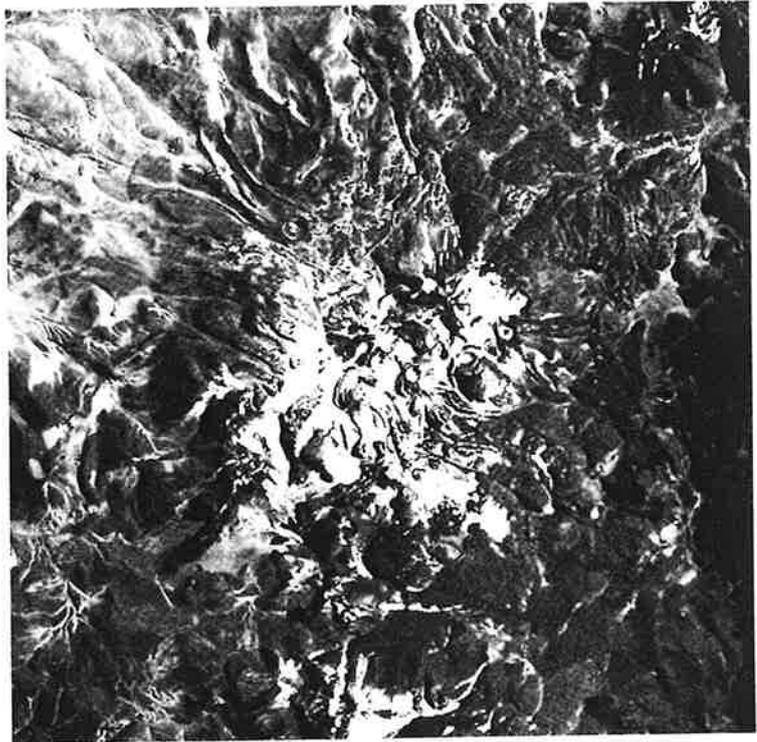


Fig. 43.3. View of the peak of Ojos del Salado from the south. The rim of the postulated ancestral "somma" caldera can be seen in the middle ground (SC).



stratigraphic relationships require field study. A welded airfall deposit may cover much of the northern flank of the volcano.

There are no records of historic activity (Casertano, 1963), but climbers report that the most recent activity is concentrated along a rift-like feature that strikes N85°E along the summit of the complex (Gonzalez-Ferran *et al.*, 1985), which consists of at least a dozen small cones, domes, explosion craters, and thick, young, lava flows.

Current Activity

There are no reports of current activity other than persistent fumaroles from the summit area.

Geochemistry

Baker *et al.* (1987) have published an account of the geochemistry of the Ojos del Salado region. The dominant rock type at Ojos del Salado *sensu stricto* is high-K dacite with some rhyodacite. The mineralogy is plagioclase, biotite, hornblende,

opaques, with minor amounts of quartz, hypersthene, and augite. These evolved magmas are part of an evolutionary sequence from more mafic magmas in the earliest phases of activity in this region.

References

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