

Comelico Formation

HANS-PETER SCHÖNLAUB & HELMUT HEINISCH

Österreichische Karte 1:50.000
Blatt BMN 195 Sillian
Blatt BMN 196 Obertilliach

Carta Topografica d'Italia 1:50.000
Foglio 017 Monte Cavallino
Foglio 018 Passo di Monte Croce Carnico

Blatt UTM 3108 Sillian
Blatt UTM 3109 Oberdrauburg

Definition

Porphyry with thin interbeds of phyllites in the lower part. It comprises pyroclastic flow deposits (ignimbrites) with a rhyolitic to rhyodacitic, partly also alkali-rhyolitic composition (HEINISCH, 1981).

Description

The massive to well bedded porphyry contains phenocrysts of quartz, alkali feldspar and plagioclase in a matrix of chlorite, serizite, quartz and albite. Accessory minerals are apatite, zircon, tourmaline, biotite and garnet. Some aggregates of quartz, chlorite and muscovite may represent former lapilli or collapsed pumice. The crystal-rich porphyry is strongly recrystallized and thus difficult to link to a particular type (HEINISCH, 1981; HUBICH & LOESCHKE, 1993; MELI, 1998).

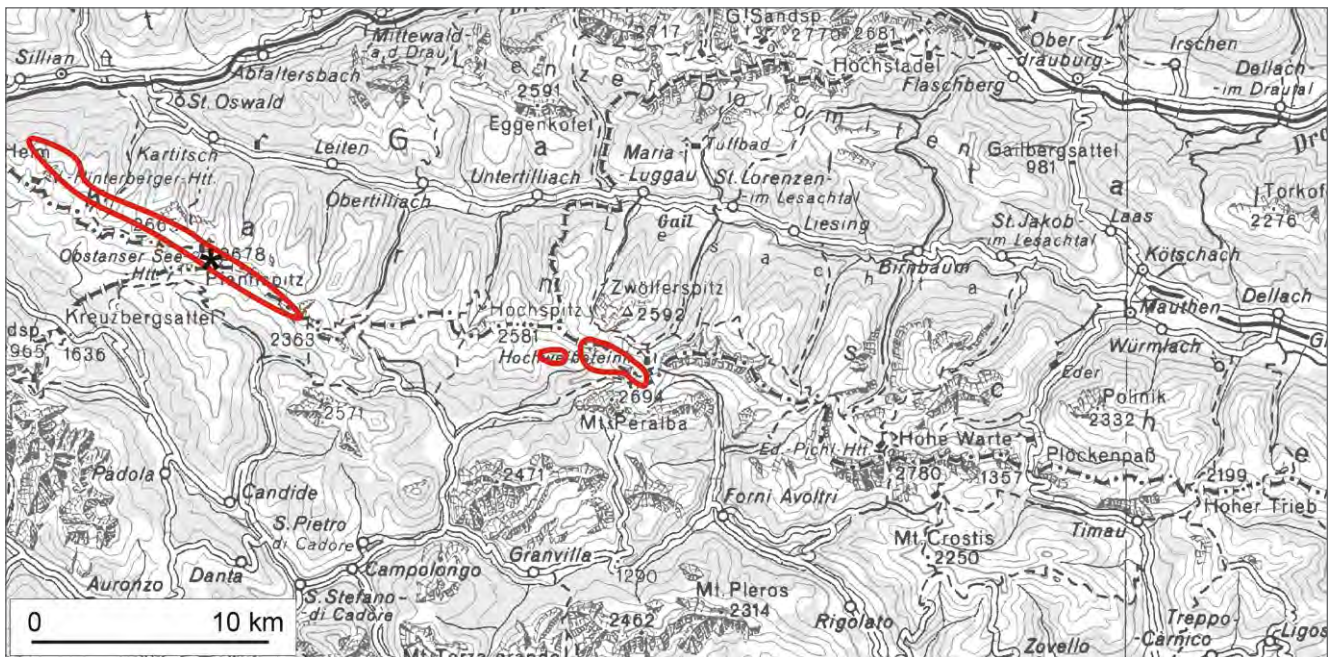
Fossil content -

Depositional environment

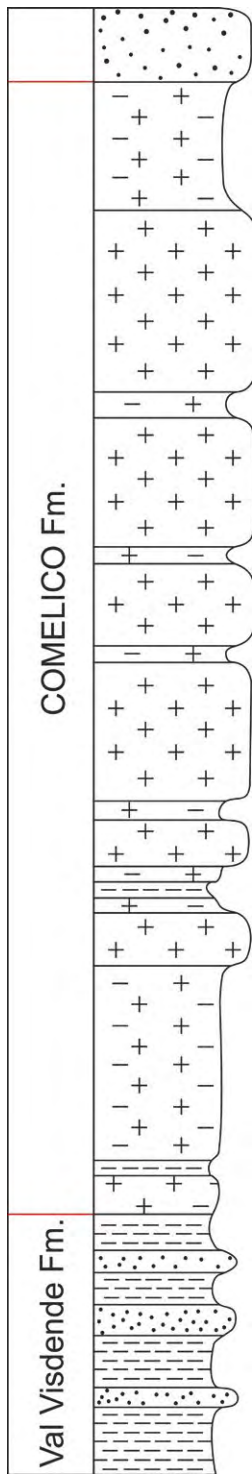
Difficult to assess, because ignimbrites of similar composition occur in different tectonic settings. Back-arc basin or position in a post-collisional extensional field of continental crust is possible (HUBICH & LOESCHKE, 1993). According to PANWITZ (2006) and BLATT (2013) a rift-related magmatism due to the extension at the North Gondwana margin is highly probable.

Stratotype

Pfannspitze Section, at coordinates N 46°50'52", E 12°30'05" (HUBICH & LOESCHKE, 1993).



Areas of outcrop of the Comelico Formation with indication of the stratotype (asterisk). Topographic map 1:200,000.



- Porphyry
- Porphyry and phyllite
- Quartzite
- Phyllite

The Pfannspitze Section, modified after HUBICH & LOESCHKE, 1993 (photo H.P. SCHÖNLAUB).

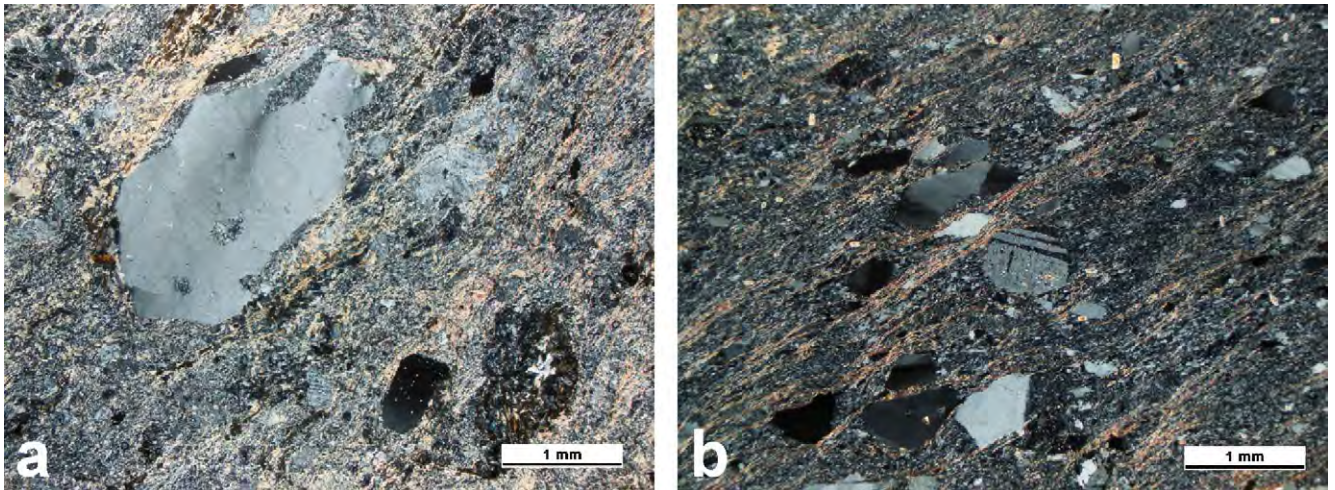
Reference sections -

Type area

Western Carnic Alps.

Main outcrop areas

Area near Obstanser See, Pfannspitze, Kleiner Kinigat, Großer Kinigat, Eisenreich-Gipfel, Tscharrspitze-Gatterspitze, Passo Silvella.



Micrographs of the Comelico Formation (photos H. HEINISCH) from southern ridge of Großer Kinigat. a) Phenocrysts of volcanic quartz with magmatic corrosion, sericitized alkali feldspar and albite-plagioclase. The matrix is strongly recrystallized and foliated, containing quartz/albite, sericite and chlorite. b) Porphyritic texture with phenocrysts of quartz, albite and sericitized alkali feldspar. The matrix is strongly recrystallized and foliated, containing quartz/albite, sericite and chlorite.

Thickness

Up to approx. 670 m.

Boundaries

Underlying units – Val Visedde Formation (conformable contact ?).

Overlying units – Quartzites, shales, flaser limestones and lydites of presumably Late Ordovician and Silurian age.

Lateral units – Fleons Formation (graywackes, conglomerates).

Derivation of name

After the region of Comelico in the Province of Belluno in northern Italy.

Synonymy

Porphyroide der Pfannspitze: SCHMIDT (1930).

Pfannspitzstreifen: SCHMIDT (1930).

Pre-Hercynian porphyry plateau [partim]: SASSI & ZIRPOLI (1968).

Volcano-sedimentary Complex [partim]: SASSI & ZIRPOLI (1968).

Comelico «porphyroids»: SASSI & SPIESS (1993).

Comelico-Porphyroid/Porphyry: SUTTNER et al. (2014).

Chronostratigraphic age

Ordovician: Based on zircon crystal dating a Late Ordovician age has been suggested by HUBICH & LOESCHKE (1993).

Additional zircon dating by SÖLLNER et al. (1997) and MELI & KLÖTZLI (2001) provided radiometric ages of 463 +/- 6 Ma and 479 +/- 8 and 485 +/- 8 Ma, respectively, for the acidic volcanic activity, i.e. the extrusion of lavas and pyroclastica. These ages are confirmed by the radiometric dating of the porphyries of Northern Graywacke Zone, Eastern Alps. These rocks yielded two clusters of LA-ICP-MS ages on zircons of 471–469 Ma and 465–464 Ma (BLATT, 2013). The porphyry thus is of Middle Ordovician age and more precisely belongs mainly to the Darriwilian Stage.

Biostratigraphy -

Complementary references -

Remarks -

References

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