

# Alticola Formation

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Österreichische Karte 1:50.000  
Blatt BMN 197 Kötschach  
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Carta Topografica d'Italia 1:50.000  
Foglio 018 Passo di Monte Croce Carnico  
Foglio 031 Ampezzo  
Foglio 032 Tolmezzo  
Foglio 033 Tarvisio

Blatt UTM 3109 Oberdrauburg  
Blatt UTM 3110 Kötschach-Mauthen  
Blatt UTM 3116 Sonnenalpe Naßfeld  
Blatt UTM 3117 Nötsch im Gailtal

## Definition

Gray and pink to red nautiloid bearing limestone (wackestone-packstone) with rare interbedded layers of gray shale, black micritic and grayish bioclastic limestone (wackestone-grainstone) at the top.

## Description

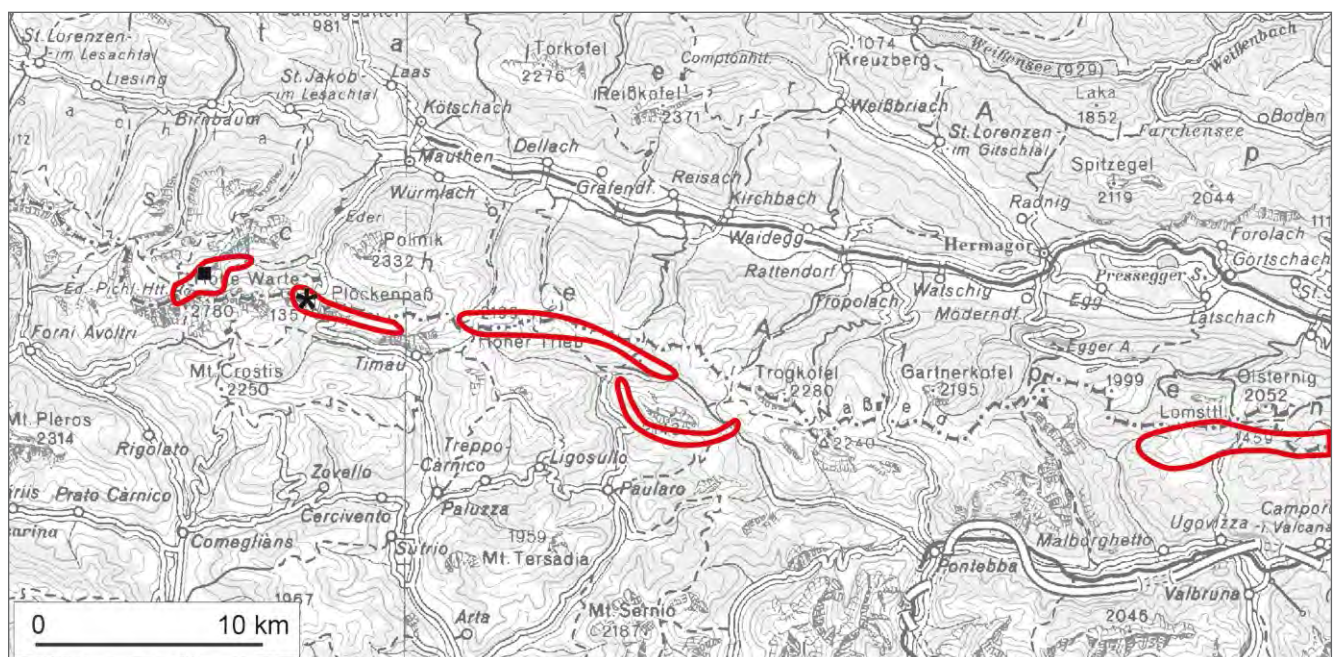
The Alticola Formation is represented by a distinctly bedded cephalopod-bearing limestone with scattered large cephalopod conchs at the base. The unit, that gets upward darker owing to a more micritic content, comprises the Silurian/Devonian boundary. Shallow, neritic facies at the top of the Alticola Formation are documented by brachiopod and bryozoan associations, to record a lowstand to initial transgression.

## Fossil content

Acritarchs, bivalves, brachiopods, bryozoans, cephalopods, chitinozoans, conodonts, corals, echinoderms, enigmatic phosphatic plates, foraminifers, gastropods, graptolites, ostracodes, scolecodonts, scyphocrinids, trace fossils, trilobites.

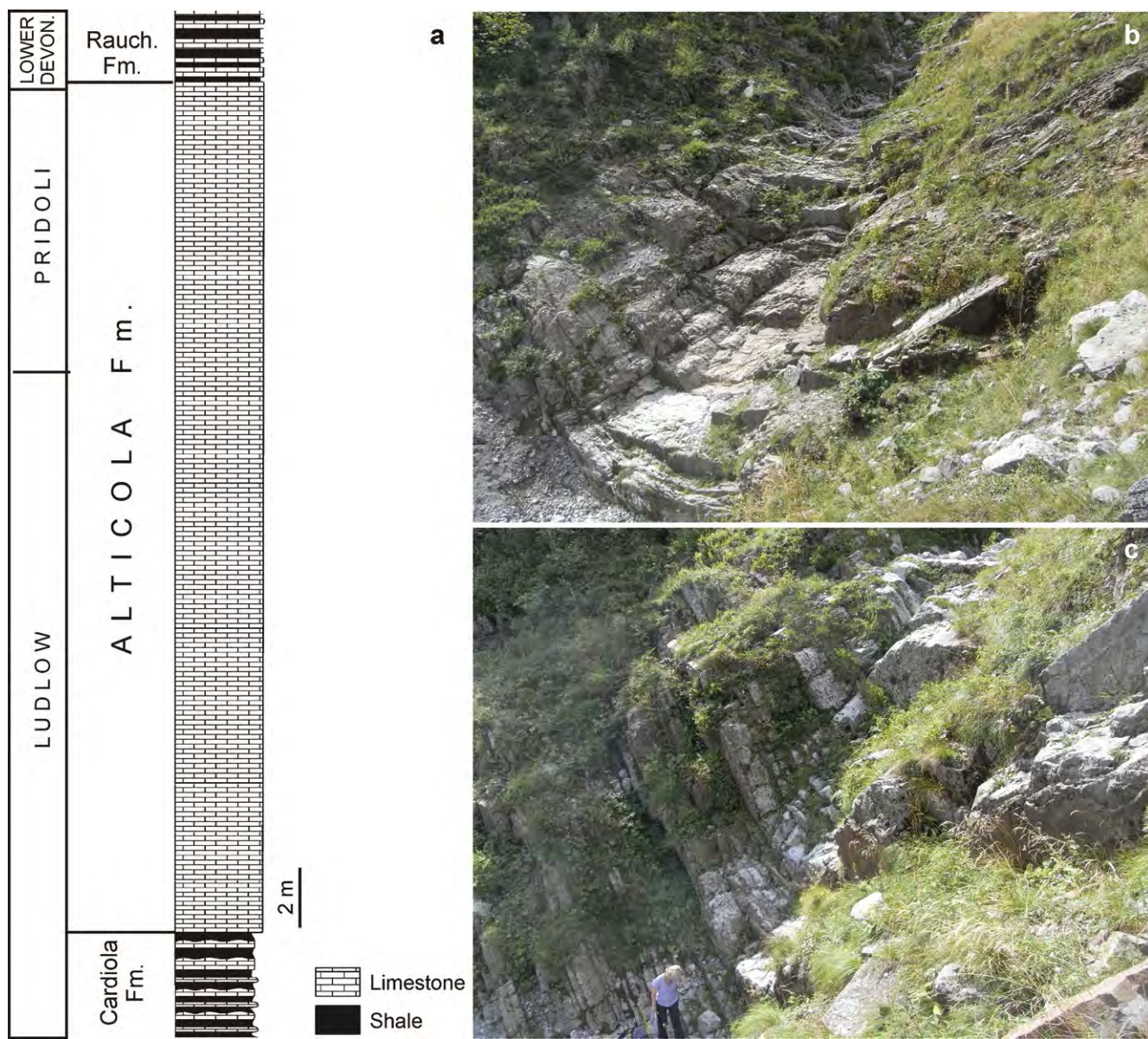
## Depositional environment

Moderately deep shelf.



Main areal distribution of the Alticola Formation in the central Carnic Alps with indication of the stratotype (asterisk) and of the reference section (square).





The Cellaon Section. a) log of the section; b-c) global views of the Alticola Formation in the section (photos C. CORRADINI) in the lower exposed part (b) and in the Pridoli part (c).

### Stratotype

Cellon Section (beds 25-47B in WALLISER, 1964), located in the eastern slope of Mt. Cellon/Creta di Collinetta, at coordinates N 46°36'32", E 12°56'30".

### Reference sections

Rauchkofel Boden Section (beds 326-331 in SCHÖNLAUB, 1980), located in the southern flank of Mt. Rauchkofel at coordinates N 46°36'53.5", E 12°52'33.0", exposing a shallower facies than the stratotype.

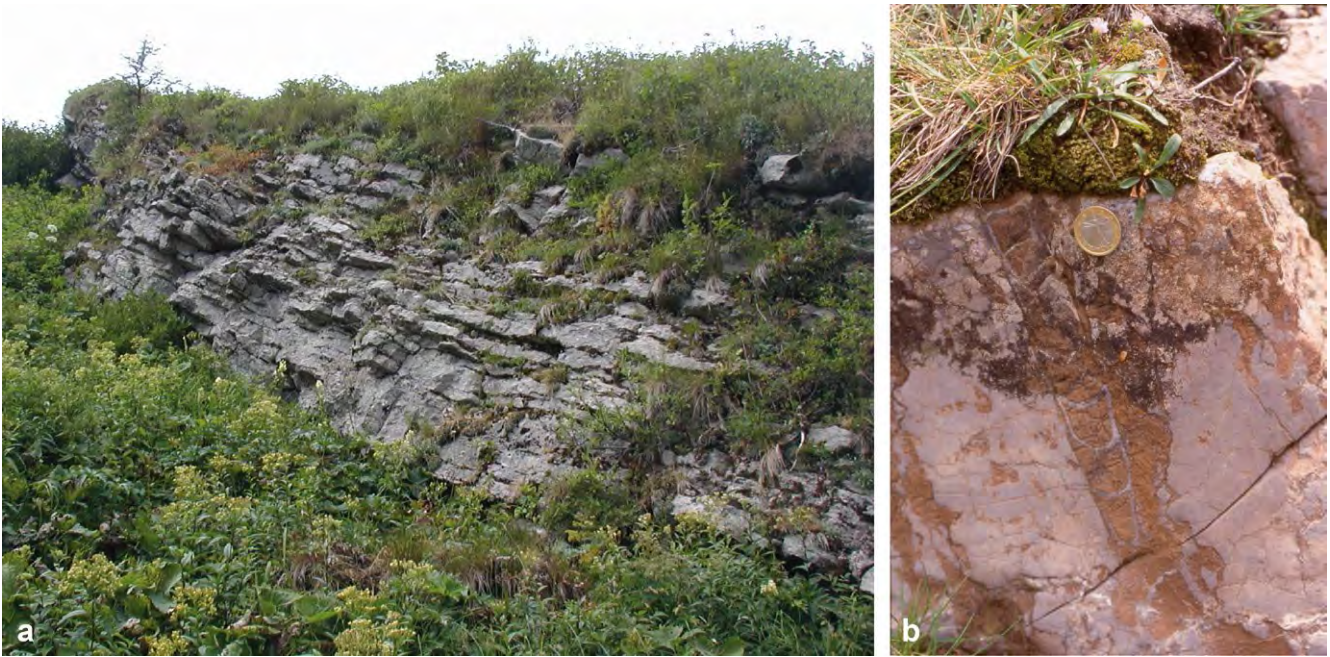
### Type area

Carnic Alps.

### Main outcrop areas

The Alticola Formation is well developed in the Carnic Alps, mainly in Lake Wolayer-Rauchkofel, Mt. Cellon/Creta di Collinetta to Creta di Timau, Hoher Trieb/Cuestalta to Zuc di Malaseit and Monte Cocco to val Bartolo sectors.





Views of the Alticola Formation in the field. a) well bedded limestone of the unit exposed in the Cadin di Lanza II section (photo L. SIMONETTO); b) close view of a nautiloid, south-east of Cima val di Puartis (photo C. CORRADINI).

## Thickness

About 25-30 m.

## Boundaries

*Underlying units* – Cardiola Formation (conformable, sharp contact).

*Overlying units* – Rauchkofel Formation (conformable, gradual contact), Seekopf Formation (conformable, gradual contact).

*Lateral units* – Nölbling Formation.

## Derivation of name

After the nautiloid *Orthoceras alticola* Barrande (FRECH, 1887).

## Synonymy

Untersilurische Schichten [partim]: STACHE (1874).

Unterer rother Orthoceren Kalk, wechsellagernd mit grauem Kalke: FRECH (1887).

Zone des *Orthoceras alticola*: FRECH (1887).

Calcarei ad ortoceratidi: TARAMELLI (1895a).

Calcarei grigi e rossi mandorlati ad *Orthoceras potens* ed *Orth. alticola* [partim]: TARAMELLI (1895b).

Bunte Flaser-oder Bänderkalke und Kalkphyllite des Obersilur [partim]: GEYER (1899).

Calcarei reticolati – facies a Cefalopodi: GORTANI & VINASSA DE REGNY (1909).

Calcarei reticolati – facies a Brachiopodi: GORTANI & VINASSA DE REGNY (1909).

Calcarei reticolati grigiastri e rossastri con *Orthoceras alticola* Barr. e *Tornoceras* [partim]: GORTANI (1913).

Gotlandiano: le facies calcaree [partim]: GORTANI (1926).

Siluriano superiore - Calcarei mandorlati rossastri e bruno nerastri, calcari a Crinoidi, calcari corallini selciferi [partim]: GORTANI & DESIO (1927).

Orthoceren-(*alticola*-) Kalke: GAERTNER (1931).

*Rhynchonella megaera*-Schichten: GAERTNER (1931).

Orthocerenkalk: HABERFELNER & HERITSCH (1932).

*Rh. megaera*-Schichten: WALLISER (1957).

Kalk mit *H. megaera*: PÖLSLER (1967).

Calcarei e marne nere alternati, talora con argilliti ai Graptoliti; calcari rossicci o nerastri ad “*Orthoceras*”, calcari nodulari [partim]: BRAGA et al. (1971).

Alticola Limestone: SCHÖNLAUB (1980).

Black nodular Limestones: SCHÖNLAUB (1980).  
Megaerella Beds: SCHÖNLAUB (1980).  
Calcari ad Alticola: SPALLETTA et al. (1982).  
Strati a Megaerella: SPALLETTA et al. (1982).  
Alticola Formation: KREUTZER (1992).  
Megaerella Formation: KREUTZER (1992).  
Megaerella Limestone: SCHÖNLAUB & KREUTZER (1994).  
Calcari a *Orthoceras* [partim]: VAI et al. (2002).  
Calcari ad *Orthoceras* [partim]: CARULLI (2006).  
Calcari e marne [partim]: VENTURINI (2006).

## Chronostratigraphic age

Silurian – Devonian: Ludfordian to lowermost Lochkovian.

## Biostratigraphy

*Conodonts*. – *Polygnathoides siluricus* (unpublished data) to *Icriodus hesperius* zones (WALLISER, 1964; CORRADINI et al., 2015 and references therein).

*Graptolites*. – *M. parultimus* - *M. transgrediens* zones (JAEGER, 1975).

*Chitinozoans*. – *Eisenachitina barrandei-Urnochitina urna* zones (PRIEWALDER, 1997).

## Complementary references

*Sequence stratigraphy*. – BRETT et al. (2007, 2009).

*Taphonomy, sedimentology and microfacies analysis*. – FLÜGEL (1965); KREUTZER (1992); FERRETTI (2005); FERRETTI et al. (2012); HISTON (2012, and references therein).

*Geochemistry*. – TIETZ (1976); FERRETTI et al. (2012).

*Isotopes*. – SCHÖNLAUB (1994); WENZEL (1997).

## Remarks

The Silurian/Devonian boundary occurs in the uppermost part of the unit, marked by the first occurrence of the conodont *Icr. hesperius* (WALLISER, 1964; CORRADINI et al., 2015).

The unit was also previously referred as “Alticola” (lower part) and “Megaerella” (upper part) limestones. K-bentonite levels were described and discussed by HISTON et al. (2007).

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