Dimon Formation

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Österreichische Karte 1:50.000
Blatt BMN 197 Kötschach
Blatt BMN 198 Weißbriach

Carta Topografica d'Italia 1:50.000
Foglio 031 Ampezzo
Foglio 032 Tolmezzo

Blatt UTM 3116 Sonnenalpe Naßfeld

Definition

Gray to green sandstone and shale, red and green slate, volcanic (pillow lava and breccia, spilite) and sub-volcanic rocks, volcaniclastites.

Description

The Dimon Formation can be subdivided into three main lithofacies:

a: Gray to greenish arenite and shale (terrigenous-volcaniclastic material);

b: Red and green slate (fine pyroclastite);

c: Diabase, pillow lava, hyaloclastite (volcanic and sub-volcanic rocks) (GORTANI, 1906; AZZINI, 1939).

Fossil content -

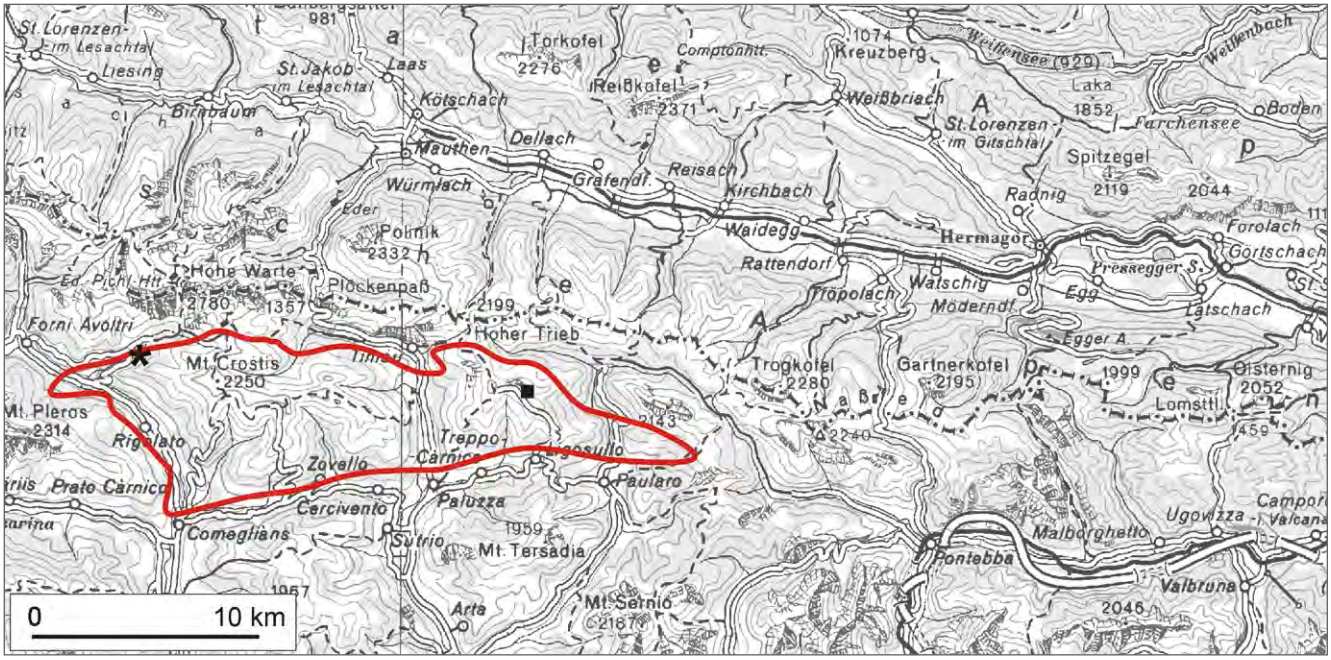
Depositional environment

Open, generally deep marine (rifting on continental crust).

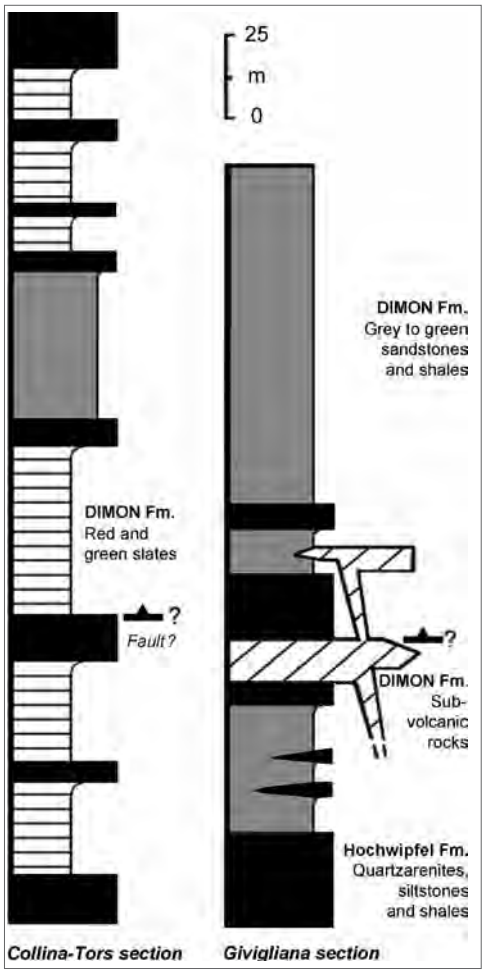
Stratotype

Collina–Tors and Givigliana Sections (SPALLETTA & VENTURINI, 2009), for the lower boundary, at coordinates respectively N 46°34'36", E 12°49'13" and N 46°34'19", E 12°49'21".

The upper boundary is not exposed due to the Variscan orogeny.



Areas of outcrop of the Dimon Formation with indication of the stratotype of the lower boundary (asterisk) and reference section (square).



The Collina–Tors and Givigliana Sections (after SPALLETTA & VENTURINI, 2009).

Reference sections

Mt. Dimon section, at coordinates N 46°34'00", E 13°04'00" (SPALLETTA et al., 1980), where the volcanites of lithofacies c (missing in the stratotype) are well exposed.

Type area

Central Carnic Alps.

Main outcrop areas

The Dimon Formation crops out in a restricted area of the Carnic Alps between Forni Avoltri and Paularo, only on the Italian side of the Austria/Italy state border.

Thickness

About 800 m, difficult to estimate due to tectonic gaps and/or duplicated series.

Boundaries

Underlying units – Hochwipfel Formation (conformable gradual contact).

Overlying units – Post-Variscan units (unconformable contact: Variscan angular unconformity).

Lateral units – Hochwipfel Formation.

Derivation of name

After Mount Dimon.

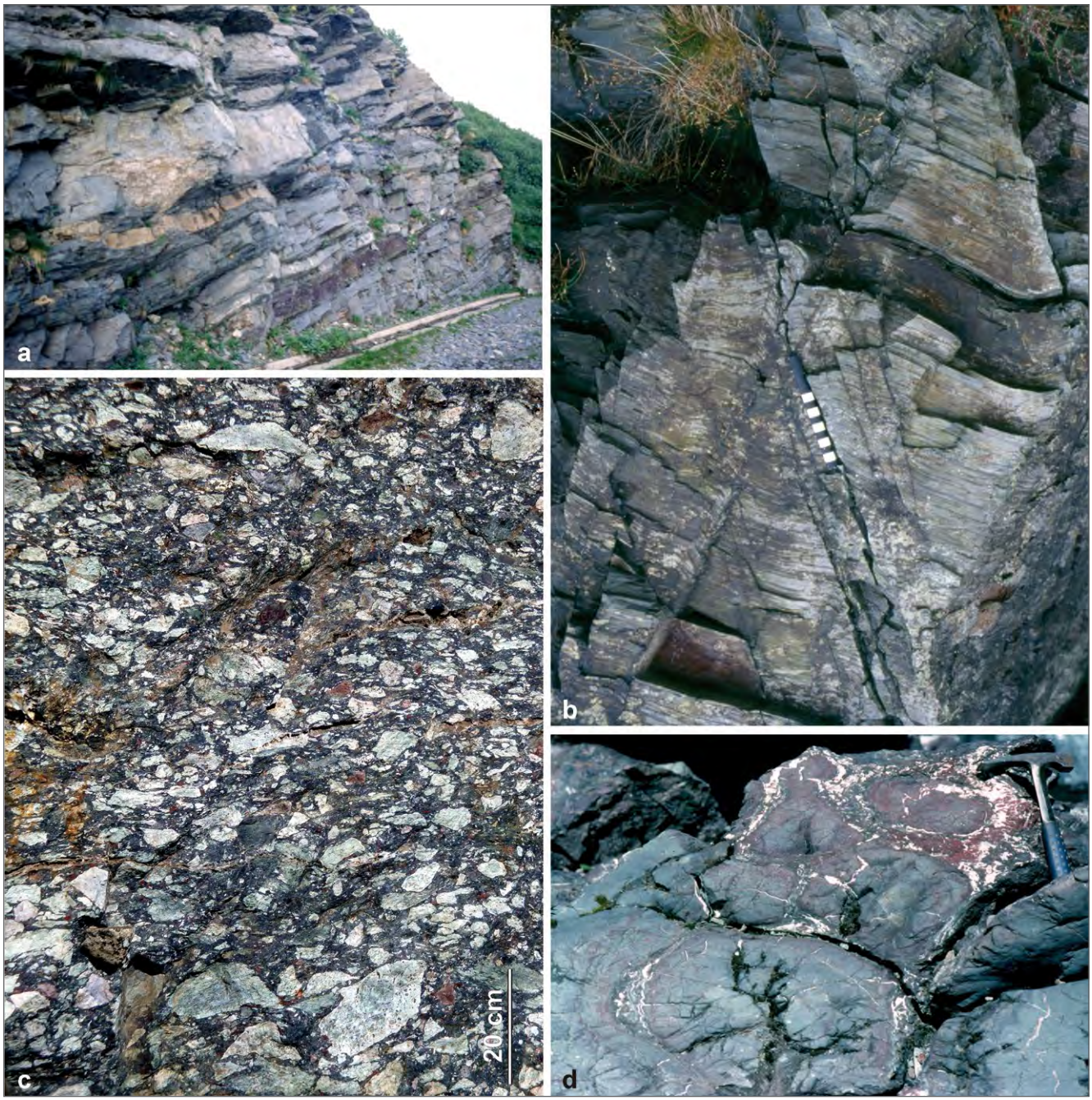
Synonymy

Plengeserie: Gaertner (1931).
Formazione del Dimon: Selli (1963); Vai (1963); Ceretti (1965); Vai in Braga et al. (1971); Germani (2007); Venturini & Spalletta (2009).
Plenge–Dimon-Formation: Schönlaub (1979).
Dimon–Plenge-Formation: Schönlaub (1985).
Dimon Formation: Brime et al. (2008).
Dimon-Formation/Dimon Formation: Suttner (2014).

Chronostratigraphic age

Carboniferous: Serpukhovian to lower Bashkirian.

Biostratigraphy -



Views of the Dimon Formation in the field. a) volcanic turbidites of lithofacies a, Mt. Dimon (photo C. Venturini); b) green slates of lithofacies b, Mt. Tenchia (photo C. Spalletta); c) volcanic breccia of lithofacies c (photo C. Spalletta); d) pillow lavas of lithofacies c, Rio Chiaula (photo F. Sgorbino).

Complementary references -

Remarks

Together with the Hochwipfel Formation the Dimon Formation was informally named “Flysch ercinico” (Vai, 1976). Despite this, the terrigenous products of the unit only rarely show the typical turbiditic features (i.e. some volcaniclastic beds) so clearly shown in the Hochwipfel Formation. The terrigenous beds contain a discrete amount of plagioclase and micas together with abundant quartz. The volcanites show an alkali olivine basaltic affinity (Gentili & Pellizzer, 1964; Rossi & Vai, 1986).

The stratigraphic position of the Dimon Formation was misinterpreted by Läufer et al. (1993), as they considered stratigraphic the boundary between the Hochwipfel and the Dimon formations in the area north of Paularo (Mt. Zermula) where the Hochwipfel Formation is overthrusted on the Dimon Formation.

References

Azzini, F. (1939): Le rocce eruttive della Carnia occidentale. – Atti Regio Istituto Veneto, **98**/2, 393–408, Venezia.

Braga, G.P., Carloni, G.C., Colantoni, P., Corsi, M., Cremonini, P., Frascari, F., Locatelli, D., Monesi, A., Pisa, G., Sassi, F.P., Selli, R., Vai, G.B. & Zirpoli, G. (1971): Note illustrative della Carta geologica d’Italia. Foglio 4c-13 M. Cavallino-Ampezzo. – Ministero dell’Industria, del Commercio e dell’Artigianato, Direzione Generale delle Miniere, Servizio Geologico d’Italia, 108 p., Roma.

Brime, C., Perri, M.C., Pondrelli, M., Spalletta, C. & Venturini, C. (2008): Polyphase metamorphism in the eastern Carnic Alps (N Italy-S Austria): Clay minerals and conodont Colour Alteration Index evidence. – International Journal of Earth Sciences, **97**/6, 1213–1229, Berlin-Heidelberg.

Ceretti, E. (1965): Ricerche sulla geologia del Gruppo del M. Crostis e Zoufplan (Carnia). – Bollettino della Società Geologica Italiana, **84**/2, 23–42, Roma.

Gaertner, H.R. von (1931): Geologie der Zentralkarnischen Alpen. – Denkschrift der Österreichischen Akademie der Wissenschaften, mathematisch-naturwissenschaftliche Klasse, Abteilung 1, **102**, 113–199, Wien.

Gentili, G. & Pellizer, R. (1964): Le rocce eruttive del Paleozoico carnico. – Bollettino della Società Geologica Italiana., **83**/1, 151–205, Roma.

Germani, D. (2007): Formazione del Dimon. – Carta geologica d’Italia 1: 50.000, Catalogo delle Formazioni, Quaderni del Servizio Geologico d’Italia, Serie III - 7(VI), Agenzia per la Protezione dell’Ambiente e per i Servizi Tecnici, 21–25, Roma.

Gortani, M. (1906): Studi sulle rocce eruttive delle Alpi Carniche. – Memorie Società Toscana Scienze Naturali, **22**, 166–198, Pisa.

Läufer, A., Loeschke, J. & Vianden, B. (1993): Die Dimon-Serie der Karnischen Alpen (Italien) - Stratigraphie, Petrographie und geodynamische Interpretation. – Jahrbuch der Geologischen Bundesanstalt, **136**/1, 137–162, Wien.

Rossi, P.L. & Vai, G.B. (1986): New geochemical data on Silesian volcanics (Dimon Fm.) from the Carnic Alps and geodynamic implication. – IGCP Pr. No. 5, Final Meeting, Cagliari 1986, Abstracts, 77, Cagliari.

Schönlaub, H.P. (1979): Das Paläozoikum in Österreich. Verbreitung, Stratigraphie, Korrelation, Entwicklung und Paläogeographie nicht-metamorpher und metamorpher Abfolgen. – Abhandlungen der Geologischen Bundesanstalt, **33**, 1–124, Wien.

Schönlaub, H.P. (1985): Das Paläozoikum der Karnischen Alpen. – In: Schönlaub, H.P. (ed.): Arbeitstagung der Geologischen Bundesanstalt 1985 Kötschach-Mauthen, Gailtal – Geologische Bundesanstalt, 34–52, Wien.

Selli, R. (1963): Schema geologico delle Alpi Carniche e Giulie occidentali. Scala 1:100.000. – Giornale di Geologia, **30**, 1–136, Bologna.

Spalletta, C. & Venturini, C. (2009): Formazione del Hochwipfel. – In: Venturini, C. (ed.): Note Illustrative del Foglio 031 Ampezzo. – Carta Geologica d’Italia alla scala 1:50000, Istituto Superiore per la Protezione e la Ricerca Ambientale (ex-Agenzia per la Protezione dell’Ambiente e per i Servizi Tecnici, Servizio Geologico d’Italia), 48-51, Stampa A.T.I. – S.EL.CA. srl. – L.A.C. srl. – System Cart srl., Firenze.

Spalletta, C., Vai, G.B. & Venturini, C. (1980): Il Flysch ercinico nella geologia dei Monti Paularo e Dimon (Alpi Carniche). – Memorie della Società Geologica Italiana, **20**, 243–265, Roma.

Suttner, T.J. (2014): Dimon-Formation/Dimon Formation. – In: Piller, W.E. (ed.): The lithostratigraphic units of the Austrian Stratigraphic Chart 2004 (sedimentary successions), Vol. I – The Paleozoic Era(them). – Abhandlungen der Geologischen Bundesanstalt, **66**, 81, Wien.

Vai, G.B. (1963): Ricerche geologiche nel gruppo del M. Coglians e nella zona di Volaia (Alpi Carniche). – Giornale di Geologia, **30**, 137–198, Bologna.

Vai, G.B. (1976): Stratigrafia e paleogeografia ercinica delle Alpi. – Memorie Società Geologica Italiana, **13**/1, 7–37, Roma.

Venturini, C. & Spalletta, C. (2009): Formazione del Dimon. – In: Venturini, C. (ed.): Note Illustrative del Foglio 031 Ampezzo. – Carta Geologica d’Italia alla scala 1:50000, ISPRA (ex-APAT, Servizio Geologico d’Italia), 52–57, Stampa A.T.I. – S.EL.CA. srl. – L.A.C. srl. – System Cart srl., Firenze.