Carnets Geol. 26 (1-Corrigendum)

E-ISSN 1634-0744
DOI: 10.2110/carnets.2026.2601Cor

Corrigendum to "Elusive Golden Spikes"; *Carnets Geol.* (2025), 26 (1), p. 1-16

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Citation: GRANIER B.R.C. (2025).- Corrigendum to "Elusive Golden Spikes"; *Carnets Geol.* (2025), 26 (1), p. 1-16.- *Carnets Geol.*, Madrid, vol. 26, no. 1-Corrigendum, p. 17-19. DOI: 10.2110/carnets.2026.2601Cor

I **incorrectly** identified the candidate boundary at Cau in Figure 9.A (GRANIER, 2025, p. 11). During my first visit to the site with E. MONTEIL (25/04/2024), we did not enter the private properties (Fig. 11.A) and were misled by numbers painted on loose pieces of rock (Fig. 11.B) along one *vía pecuaria* (drovers' road; livestock track). Using the '*Sistema de Información Geográfica de Parcelas Agrícolas* (SIGPAC)' of the '*Ministerio de Agricultura, Pesca y Alimentación*' of Spain, I later identified a branch of the *vía pecuaria* skirting an *arroyo* (dry stream bed) that crosses privately owned properties. During a second visit, made alone (19/11/2025), I followed this route and observed that the *arroyo* provides only limited exposure of Aptian strata (Fig. 11.C–J). It is important to note that the beds below number 10 (*i.e.*, those including the candidate boundary) are not visible, as is also the case for other intervals of the Cau section (*e.g.*, between beds 11 and 13). In conclusion, the section is poorly preserved and does not appear suitable for establishing a Global Boundary Stratotype Section and Point (GSSP).

I also **incorrectly** stated that "the Aptian Working Group (…) proposed the Cau section (Fig. 9.A, Province of Alicante, SE Spain; GPS coordinates: 38°42'13.4"N, 0°00'16.2"W), with its set of cores (D1 to D4), as the candidate for the GSSP" (GRANIER, 2025, p. 9).

After my second visit to the Cau section, I contacted the Working Group in order to report the advanced degradation of the site. In light of this issue, and other issues that will emerge later, I recommended withdrawal of the initial submission. I received an immediate reply from one co-chair of the Working Group (H.J. WEISSERT, personal communication, 22/11/2025) stating that "the Cau GSSP proposal has been and still is based on data from a core." The second co-chair (E. ERBA, Chair of the International Commission on Stratigraphy, personal communication, 22/11/2025) further explained that "the large majority of the Aptian WG voted for the Cau core (D4) in order to place the GSSP. There is already a GSSP in an ice core. Please wait for the proposal to express your comments. However, it must be clear that the decision will not change."

Quaternary ice cores should remain exceptional cases, justified only by the absence of suitable exposures (*i.e.*, marine successions with a continuous fossil record and no hiatus) for those ages. Reference to these cases as representing a valid precedence is therefore inappropriate. Existing rules and recommendations of the International Commission on Stratigraphy (HEDBERG *et al.*, 1976; COWIE *et al.*, 1986; SALVADOR, ed., 1994; REMANE *et al.*, 1996) do not specifically indicate cores as acceptable locations for GSSPs. However, by their very nature, they should not be considered acceptable, a position that reflects what is widely acknowledged in the stratigraphic community as a matter of disciplinary common sense, *i.e.*, a principle so fundamental that its formal codification has, to date, been regarded as unnecessary.

A GSSP is defined as a reference 'point', physically demarcated by a 'golden spike', placed within a stratigraphic 'section' at a designated 'site'. By definition, a drilling locality corresponds to a 'site', and the strata penetrated during drilling constitute a 'section'. However, this section is entirely located in the subsurface, which makes physical placement of a 'golden spike' impossible at any drilling site. Coring is a sampling technique, and a core provides ideally

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Published online in final form (pdf) on December 14, 2025
[Editor: Robert W. SCOTT; language editors: Brian PRATT & Phil SALVADOR; technical editor: Bruno R.C. GRANIER]

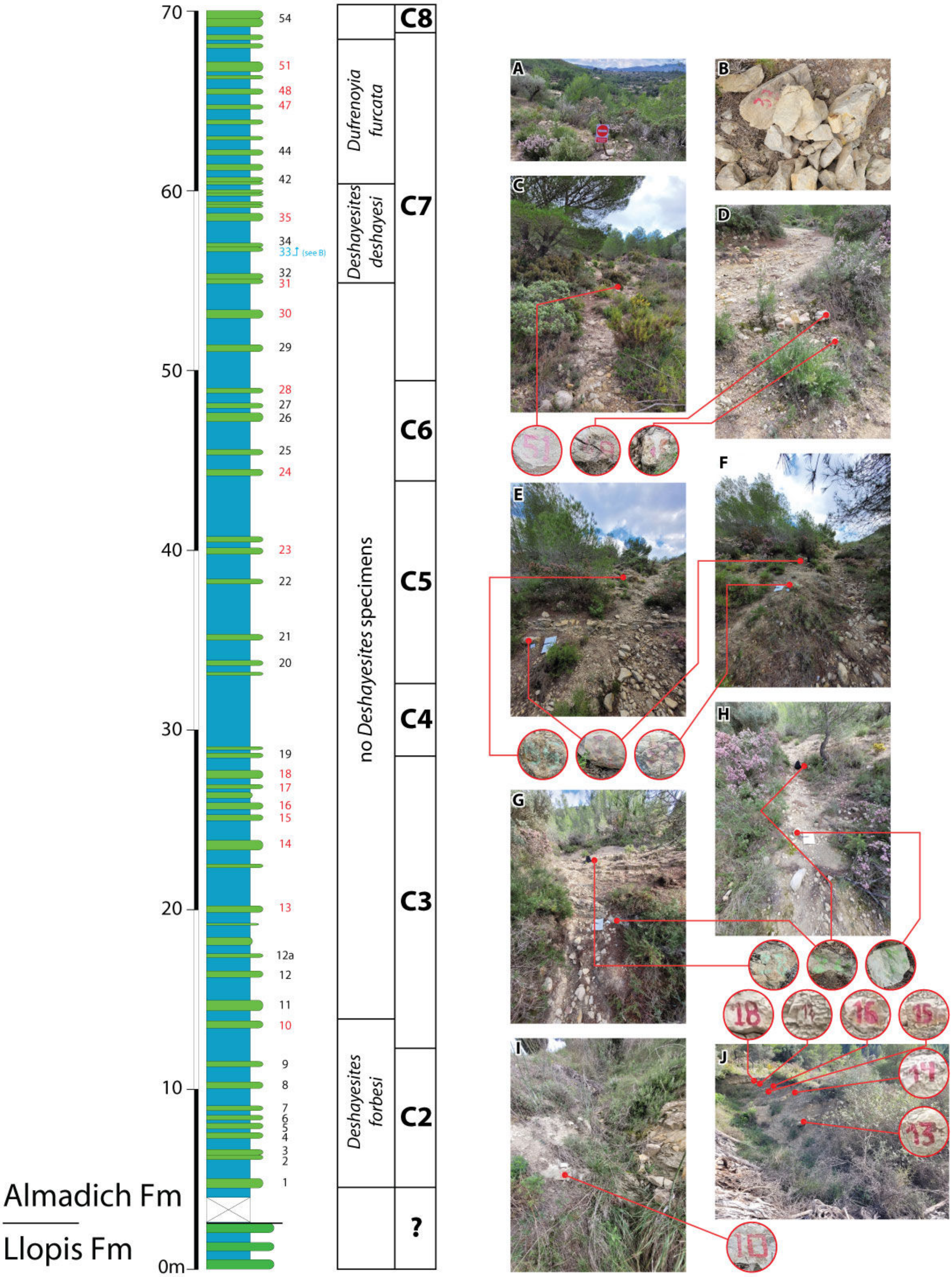

Figure 11: The Cau section: Lithologic log redrawn from RUIZ-ORTIZ *et al.* (2016); ammonite zones from MORENO-BEDMAR *et al.* (2012), modified; Carbon-isotope stratigraphy from RUIZ-ORTIZ *et al.* (2016). **A)** The section recently evaluated (22/11/2025) along a *vía pecuaria* and an *arroyo* that crosses privately owned properties; **B)** Loose rock marked with the number 33, found well above the actual section in the *vía pecuaria*; **C)** Bed number 51, located beside the *vía*; **D)** Beds 47 and 48 at the junction of two *vías*; **E)** Beds 31 and 35; **F)** Beds 30 and 31; **G)** Beds 24 and 28; **H)** Beds 23? and 24; **I)** Bed 10 (no lower beds are visible); **J)** Beds 13, 14, 15, 16, 17, and 18.

a continuous sampling [(*)], but a core does not constitute a site. A boundary correlative to the stage boundary can be identified within a core, yet a core cannot host a 'golden spike' and therefore cannot serve as the physical locus of a GSSP.

It needs to be remembered that a GSSP is potentially a World Heritage Site. It should not only be originally well preserved and subsequently protected, but also remain accessible to both researchers and the general public. Selection of a boundary point within a core and designation of a section at a drilling location directly conflict with the fundamental requirement of the GSSP, which demands a single, physically accessible point in a stratigraphic section at a single site.

Acknowledgements

Additional fieldwork was made possible thanks to an invitation from Prof. José Enrique TENT-MANCLÚS of the Department of Environment and Earth Sciences, University of Alicante (Spain), to whom I express my sincere gratitude for his support. I likewise wish to acknowledge the contribution of an anonymous resident of Benissa to the local investigations, together with the valuable comments provided by Prof. Brian PRATT and Dr Robert W. SCOTT.

Bibliographic references

COWIE J.W., ZIEGLER W., BOUCOT A.J., BASSETT M.G. & REMANE J. (1986).- Guidelines and statutes of the International Commission on Stratigraphy (ICS).- *Courier Forschungsinstitut Senckenberg*, vol. 83, p. 1-14.

GRANIER B.R.C. (2025).- Elusive Golden Spikes: When stratigraphers face the technical impossibility of specifying a GSSP in the field.- *Carnets Geol.*, Madrid, vol. 26, no. 1, p. 1-16. DOI: 10.2110/carnets.2026.2601

HEDBERG H.D. (ed., 1976).- International stratigraphic guide. A guide to stratigraphic classification, terminology and procedure.- John Wiley and Sons, New York, 200 p.

MORENO-BEDMAR J.A., COMPANY M., SANDOVAL J., TAVERA J.M., BOVER-ARNAL T., SALAS R., DELANOY G. MAURRASSE F.J.-M.R. & MARTÍNEZ R. (2012).- Lower Aptian ammonite and carbon isotope stratigraphy in the eastern Prebetic Domain (Betic Cordillera, southeastern Spain).- *Geologica Acta*, Barcelona, vol. 10, no. 4, p. 333–350.

REMANE J., BASSETT M.G., COWIE J.W., GOHRBANDT K.H., LANE H.R., MICHELSEN O. & WANG N. (1996).- Revised guidelines for the establishment of global chronostratigraphic standards by the International Commission on Stratigraphy (ICS).- *Episodes*, Seoul, vol. 19, no. 3, p. 77-81. DOI: 10.18814/epiiugs/1996/v19i3/007

RUIZ-ORTIZ P.A., CASTRO J.M., GEA G.A. de, JARVIS I., MOLINA J.M., NIETO L.M., PANCOST R.D., QUIJANO M.L., REOLID M., SKELTON P.W. & WEISSERT H.J. (2016).- New drilling of the early Aptian OAE1a: The Cau core (Prebetic Zone, south-eastern Spain).- *Scientific Drilling*, vol. 21, p. 41–46.

SALVADOR A. (ed., 1994).- International stratigraphic guide. A guide to stratigraphic classification, terminology and procedure, 2nd edition.- IUGS and the Geological Society of America, 214 p.

[(*)] *According to R.W. SCOTT (personal communication, 09/12/2025),* "A core is a sample of a stratigraphic interval. One purpose of a GSSP is that the rocks can be sampled and resampled by future workers. The limited size of a core will limit the number of future samples that can be taken and thus is inadequate as a GSSP for that purpose."