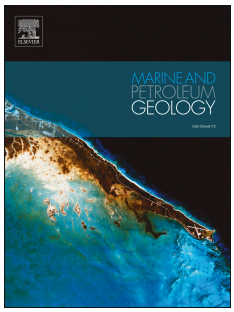
Accepted Manuscript



Thermal maturity assessment study of the late Pliensbachian-early Toarcian organic-rich sediments in southern France: Grands Causses, Quercy and Pyrenean basins

Carolina Fonseca, Joalice Oliveira Mendonça, João Graciano Mendonça Filho, Carine Lézin, Luis V. Duarte

PII: S0264-8172(18)30017-5

DOI: 10.1016/j.marpetgeo.2018.01.017

Reference: JMPG 3207

To appear in: *Marine and Petroleum Geology*

Received Date: 21 September 2017

Revised Date: 3 January 2018

Accepted Date: 12 January 2018

Please cite this article as: Fonseca, C., Mendonça, J.O., Mendonça Filho, Joã.Graciano., Lézin, C., Duarte, L.V., Thermal maturity assessment study of the late Pliensbachian-early Toarcian organic-rich sediments in southern France: Grands Causses, Quercy and Pyrenean basins, *Marine and Petroleum Geology* (2018), doi: 10.1016/j.marpetgeo.2018.01.017.

Thermal maturity assessment study of the late Pliensbachian-early Toarcian organic-rich sediments in southern France: Grands Causses, Quercy and Pyrenean basins

Carolina Fonseca[ac*], Joalice Oliveira Mendonça[b], João Graciano Mendonça Filho[b], Carine Lézin[c], Luis V. Duarte[a]

[a] MARE - Marine and Environmental Sciences Centre, Faculty of Sciences and Technology, Department of Earth Sciences, University of Coimbra, Rua Sílvio Lima, 3030-790 Coimbra, Portugal. [*] carolina.fonseca@get.omp.eu (corresponding author)

[b] Laboratório de Palinofácies e Fácies Orgânica (LAFO), Departamento de Geologia, Instituto de Geociências, Universidade Federal do Rio de Janeiro, Av. Athos da Silveira, 274, prédio do CCMN, sala J1020, Campus Ilha do Fundão, Cidade Universitária, CEP 21.949-900, Rio de Janeiro, RJ, Brazil

[c] Géosciences Environnement Toulouse (GET), Observatoire Midi Pyrénées, Université de Toulouse, CNRS, IRD, 14 avenue E. Belin, F-31400 Toulouse, France

Abstract

Thermal maturity of late Pliensbachian-early Toarcian organic-rich sediments in the Grands Causses (Suèges section), Quercy (Caylus section) and Pyrenean (Pont de Suert section) basins was determined through multiple parameters, including Spore Coloration Index (SCI), hydroid random reflectance (HR_r) and spectral fluorescence of *Tasmanites* algae (λ_{max}). The main objective of this study is to test the effectiveness and make comparisons of organic matter thermal maturity in these three sections by different techniques and particularly hydroid reflectance.

For the Suèges section SCI presented a value of 3.5-4.0. HR_r ranges between 0.36% and 0.47%, which corresponds to 0.45% to 0.52% VR_{eq}, and shows a good correlation with SCI values. Spectral fluorescence analysis presents a λ_{max} of 560 nm for most samples. The fluorescence spectral maximum seems to be redshifted in comparison to other thermal maturity parameters.

The Caylus section exhibited SCI of 3.5-4.0. HR_r ranges between 0.32% and 0.50% corresponding to 0.42% to 0.54% VR_{eq}. Spectral fluorescence analysis points out a λ_{max}