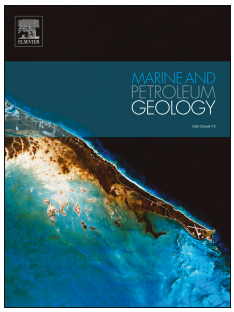
Accepted Manuscript



Thermotectonic history of the Maastrichtian reservoir in Campos Basin

Christie Helouise Engelmann de Oliveira, Andréa Ritter Jelinek, Diego Timoteo, Matthias Bernet

PII: S0264-8172(18)30121-1

DOI: 10.1016/j.marpetgeo.2018.03.021

Reference: JMPG 3286

To appear in: *Marine and Petroleum Geology*

Received Date: 9 November 2017

Revised Date: 3 February 2018

Accepted Date: 14 March 2018

Please cite this article as: Engelmann de Oliveira, C.H., Jelinek, André.Ritter., Timoteo, D., Bernet, M., Thermotectonic history of the Maastrichtian reservoir in Campos Basin, *Marine and Petroleum Geology* (2018), doi: 10.1016/j.marpetgeo.2018.03.021.

Thermotectonic history of the Maastrichtian reservoir in Campos Basin

Christie Helouise Engelmann de Oliveira[1*], Andréa Ritter Jelinek[2], Diego Timoteo[3], Matthias Bernet[4]

1 Programa de Pós-Graduação em Geociências, Instituto de Geociências, Universidade Federal do Rio Grande do Sul, Brazil

2 Instituto de Geociências, Universidade Federal do Rio Grande do Sul, Brazil

3 Hound Exploration S.A.C., Peru

4 Institut des Sciences de la Terre (ISTerre), Université Grenoble Alpes, France

[*]Corresponding author

E-mail address: christie.oliveira10@gmail.com

Full postal address: Av. Bento Gonçalves 9500, Agronomia, Porto Alegre, RS, Brazil. Zip code: 91501-970

Abstract

The present study of the Carapebus Formation on well samples refines our understanding of the thermotectonic history of the Maastrichtian oil reservoir in the Campos Basin. Our investigations are based on the thermal analysis of 55 cuttings samples, of which 45 have also been analyzed with apatite fission track (AFT) dating, in addition to eleven cores analyzed for vitrinite reflectance (VR) and spore color. The apatites are partially annealed and the AFT central ages does not provide precise information on exhumation and thermotectonic events that occurred in the source terrain, whereas the youngest AFT ages provide a minimum age of 45.9 ± 5.5 Ma due to significant track annealing in the rocks. The VR (0.37–0.48 %Ro), spore color and Thermal Alteration Index (TAI) data correspond to the immature zone of hydrocarbons. The thermal history integrated with seismic profiles demonstrate that two phases of