



**HAL**  
open science

## On the depth-dependent stress accumulation for earthquake generation process

Hideo Aochi, Kenichi Tsuda

► **To cite this version:**

Hideo Aochi, Kenichi Tsuda. On the depth-dependent stress accumulation for earthquake generation process. EGU General Assembly 2021 - Gather Online, Apr 2021, online, France. hal-03126720

**HAL Id: hal-03126720**

**<https://brgm.hal.science/hal-03126720>**

Submitted on 1 Feb 2021

**HAL** is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

EGU21-8682

EGU General Assembly 2021

© Author(s) 2021. This work is distributed under the Creative Commons Attribution 4.0 License.



## On the depth-dependent stress accumulation for earthquake generation process

**Hideo Aochi**<sup>1,2</sup> and Kenichi Tsuda<sup>3</sup>

<sup>1</sup>BRGM, DRP/SPU, Orleans Cedex 2, France (h.aochi@brgm.fr)

<sup>2</sup>Laboratoire de Géologie, CNRS - École Normale Supérieure - PSL University, Paris, France (aochi@geologie.ens.fr)

<sup>3</sup>Institute of Technology, Shimizu Corporation, Tokyo, Japan (kenichi.tsuda@shimz.co.jp)

Dynamic rupture simulation of an earthquake mostly aims at a characteristic event, which may rupture the entire seismogenic zone of a fault system, perhaps reaching the ground surface. However, hazardous earthquakes sometimes occur along a part of the depths of a fault. Many questions arise why only this particular depth does rupture and whether the surrounding part remains hazardous. Previously, Aochi (GJI, 2018) has considered a depth-dependent stress accumulation for emphasizing the difference of reverse and normal faults under the hypothesis that stress is sufficiently and uniformly charged at all depths. We probably need to revise this hypothesis and the partially charged fault along depth would be more suitable for explaining the given question. By developing the previous simulations by Aochi (GJI, 2018), we carry out numerical simulations for demonstrating the importance of the depth-dependent stress accumulation.