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## Physical erosion rates in Ogooué and Mbei Rivers (Gabon, Western Central Africa): insights for Cratonic Catchments.

Vincent Regard<sup>1</sup>, Sébastien Carretier<sup>1</sup>, Moquet Jean-Sébastien<sup>2</sup>, Sandrine Choy<sup>1</sup>, Pierre-Henri Blard<sup>3,4</sup>, Sakaros Bogning<sup>5</sup>, Auguste Paulin Mbonda<sup>6</sup>, Emmanuel Mambela<sup>7</sup>, Marie Claire Paiz<sup>7</sup>, Michel Séranne<sup>8</sup>, Julien Charreau<sup>3</sup>, Delphine Rouby<sup>1</sup>, Julien Bouchez<sup>9</sup>, Jérôme Gaillardet<sup>9</sup>, and Jean-Jacques Braun<sup>1,10,11</sup>

<sup>1</sup>University of Toulouse, UPS (OMP), CNRS, IRD, CNES, Geosciences Environnement Toulouse (GET), Toulouse, France (vincent.regard@get.omp.eu)

<sup>2</sup>Univ. Orléans, CNRS, BRGM, ISTO, UMR 7327, F-45071, Orléans, France

<sup>3</sup>CRPG, CNRS, Université de Lorraine, Nancy, France

<sup>4</sup>Laboratoire de Glaciologie, ULB, Brussels, Belgium

<sup>5</sup>Université de Douala, Cameroon

<sup>6</sup>Centre National de la Recherche Scientifique, Libreville, Gabon

<sup>7</sup>The Nature Conservancy, Libreville, Gabon

<sup>8</sup>Géosciences Montpellier, Université de Montpellier, CNRS, Montpellier, France

<sup>9</sup>IPGP (Université Paris Cité, CNRS, Université La Réunion, IGN), Paris, France

<sup>10</sup>LMI DYCOFAC IRD-University of Yaoundé 1-IRGM, BP 1857 Cameroon

<sup>11</sup>Agence Nationale des Parcs Nationaux, Libreville, Gabon

We measured the long term physical denudation of the Ogooué River catchment using <sup>10</sup>Be. These measurements are averaged over 25-200 ka (average 40 ka), depending on the physical denudation rate. The denudation rate of the Ogooué River catchment is slow (38 t/km<sup>2</sup>/a, 15 m/Ma), slightly higher than the Equatorial West Africa (from Senegal to Angola, 26 t/km<sup>2</sup>/a, 10 m/Ma). Physical denudation and chemical weathering fall within the same order of magnitude. Thus, although low, chemical weathering, is substantial compared to physical denudation, its contribution is likely over 30% of the total denudation.

Denudation rates are spatially variable (from 10 to 60 t/km<sup>2</sup>/a) within this large Ogooué River catchment. Over the long term, this variability exhibits a fairly close match of physical denudation/chemical weathering, except in the Batéké Plateaux area, because they are made up of already weathered detrital material and their modern flux of solutes is therefore very low (~9.5 t/km<sup>2</sup>/a). The spatial distribution is similar to the one described in Moquet et al. (2021)'s work, i.e. the southern part of the catchment is denuding twice as fast as the northern part. We show here that the whole picture did not vary much since 100 ka, as shown by both methods giving consistent results. Faster denudation in the south of the catchment may be related to some more uplift than in the north caused by the south African superswell.

