Analysis of the fracture network in the Séguéla-Mankono region (central-west Côte d'Ivoire, West Africa). Contribution to the understanding of the emplacement of the lamproid dykes and diamondiferous phologopite kimberlites

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The analysis of the spatial images ETM+ of Landsat 7, Radarsat and MNT-SRTM of the Séguéla region in the central-west of Ivory Coast, made it possible to extract the main lineaments (rectilinear and curvilinear), the most remarkable are:

1. The Séguéla (ZFS), Goma (ZMG), Nandala (ZFN) and Marahoué (ZFM) fracture zones of N-S direction;
2. Mankono fracture networks (RFM), Toubabouko (RFT), of E-W direction;
3. The fracture zones of Mankono West (ZFMo), Dualla (ZFD), Kohoué (ZFK) and Kohouyra (ZFKo), with a NE-SW direction;
4. Fractures of Yhouo (FY) and Kongu (FK) of NW-SE direction;
5. Fracture zones of Kongasso (ZFKo) and Kani (ZFKa), with a ENE-WSW direction.

Numerous circular structures are also detected and attributed to granitic intrusions. The analysis of all the fractures makes it possible to propose a structural model of emplacement of the lamproid dykes and of the diamondiferous phlogopite kimberlites. So, the late operation of the E-W direction dextral fracture zones has reactivated the former fracture zones oriented N170° in tension gashes and those of direction NW-SE and NE-SW Riedel synthetic (R) and antithetic (R'), respectively, which have thus favored the emplacement of the diamantiferous dykes in these respective directions.

The examination of the spatial relationships between the drainage network and the diamond occurrences has made it possible to locate the primary sites of the diamond.

Keywords: Landsat 7 ETM+, RadarSat and DEM-SRTM, fracture networks, diamond, Séguéla, Côte d'Ivoire, West Africa