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LONG WAVELENTH SUBSIDENCE OF WESTERN EUROPE DURING LATE EOCENE-OLIGOCENE (38-23 Ma): MANTLE DYNAMIC EFFECT?

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Western Europe (France, southern Britain, southern Belgium, western Germany) is subsiding during Late Eocene to Oligocene (38-23 Ma) as suggested by the growth of numerous small sedimentary basins mainly filled by lacustrine deposits with some brackish to marine deposits.
This large-scale subsidence is coeval with the early stage of the so-called Oligocene rifts (in fact Late Bartonian to Rupelian): Lower Rhinegraben, Bresse, Limagnes. The subsiding domain extends from Cornwall to the Rhine Graben including the Armorican Massif, the southern Paris Basin, the northern Aquitaine Basin, the French Central Massif, the Ardennes-Eifel...
This subsidence occurred at a period of global sea level fall and then an eustatic component cannot explain (1) the accommodation space creation and (2) the marine floding with a paroxysm during Early Oligocene times (Armorican Massif, ?Ardennes, French Massif central). This marine flooding also indicate that the relief of the Hercynian basement was less elevated and smoother than today.
Some of those small "basins" were interpreted as little rifts, but new mapping (e.g. Puy-en-Velay or Forez Plain in the French Massif central) or new geophysical data (e.g. Rennes Basin in the Armorican massif) suggest that no faults control those basins or that they result from post-depositional collapses.
This long wavelength subsidence is at the scale of the mantle dynamic. Possible mantle mechanisms and the relationships with the "Oligocene" rifts and the North Sea inversion will be discussed.