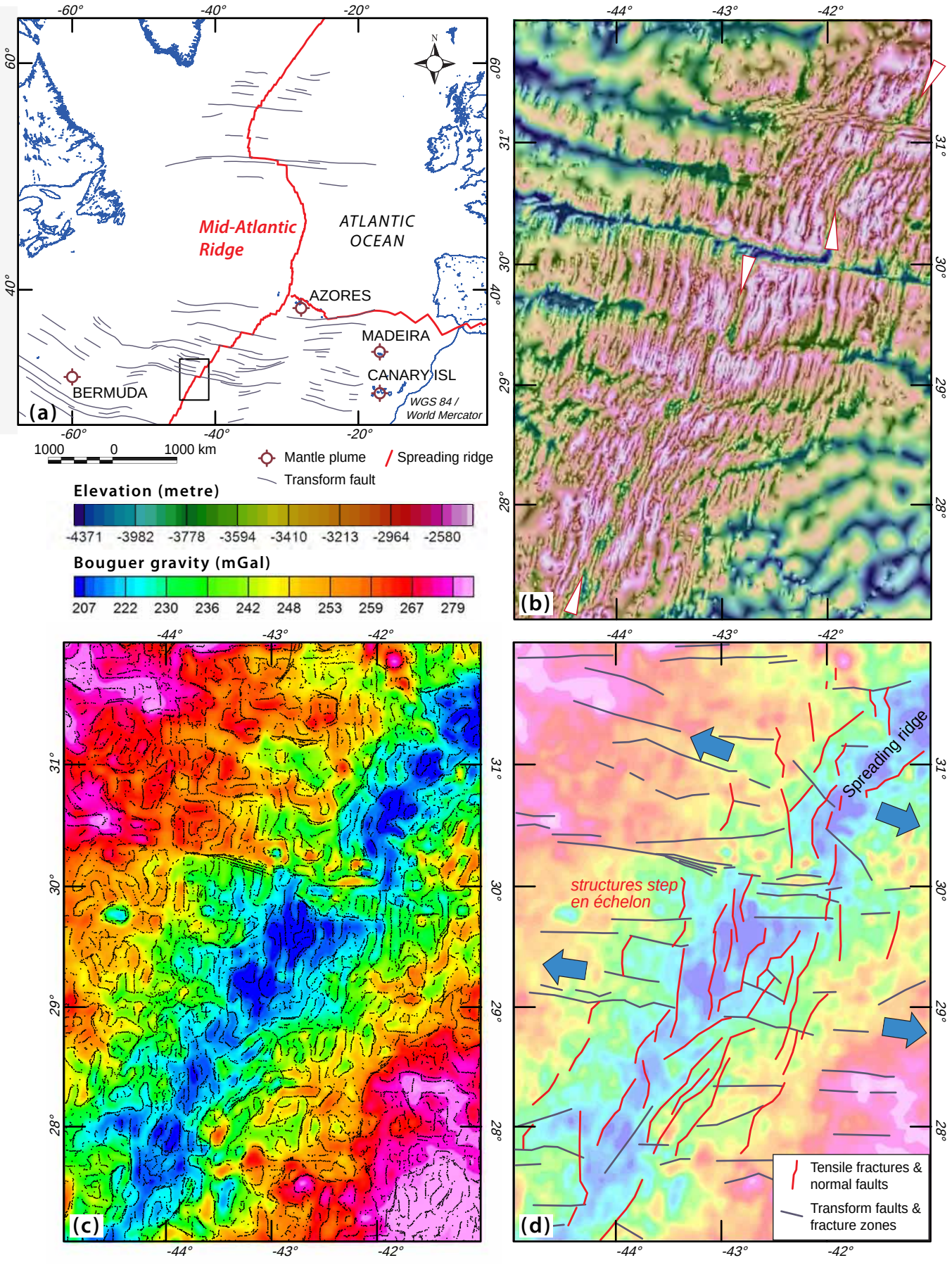
-60°
-40°
-20°
60°
40°
N
Mid-Atlantic Ridge
ATLANTIC OCEAN
AZORES
MADEIRA
CANARY ISL
BERMUDA
(a)
WGS 84 / World Mercator
1000 0 1000 km
Mantle plume
Spreading ridge
Transform fault
Elevation (metre)
-4371 -3982 -3778 -3594 -3410 -3213 -2964 -2580
Bouguer gravity (mGal)
207 222 230 236 242 248 253 259 267 279
-44°
-43°
-42°
31°
30°
29°
28°
(b)
(c)
(d)
Spreading ridge
structures step en échelon
Tensile fractures & normal faults
Transform faults & fracture zones

Supplementary Fig. 1. Topography and gravity of a segment of the Mid-Atlantic Ridge. (a) Location and tectonic setting. (b) Enhanced SRTM30 topography data (Becker et al. 2009; colour scale is approximate due to enhancement of structural features) highlighting ridge-parallel faults and fractures and transform faults and fracture zones. Triangles mark the ridge axis. (c) EGM08 (Pavlis et al. 2012) Bouguer gravity anomaly with superposed edges in the total horizontal gradient. The active spreading centre corresponds to a Bouguer gravity low. (d) Simplified interpretation of (c) superposed on a lightened Bouguer gravity image. Gravity worms define a series of structures parallel to (northern segment) or stepping *en échelon* along the spreading ridge. Gravity highs and linear gravity worms along rifts interpreted on Venus in our study show equivalent patterns and are similarly truncated against faults with apparent horizontal offsets. Such similarities raise the question as to whether some rifts on Venus may be also formed by crustal spreading about central ridges?

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