

Consider a small circle on the sphere (in black, below).



Two points can be placed on this circle, A and B.



If one attaches the two ends of a rubber band to each of these two points, the rubber band naturally follows a different path than the circle. However, the elastic band, which tries to minimize its tension, aligns itself on a straight line joining the two points: it does not make any "detours". The small circle is therefore not a straight line.



However, if we join two points located on a "great circle" in the same way, for example as below, we can see that the elastic band, in order to minimize its tension and therefore go straight, aligns itself on this circle. The straight circle is indeed a straight line, while a small circle is a detour on a sphere.

