Seamounts are a characteristic feature of the earth. The manner of origin, colonization, and the influence upon the surrounding sea area have been investigated in the case of only some seamounts and judgement of some only can be made in comparison with the continental shelf. This first seamount cruise of METEOR served oceanographical, geological, biological, and geophysical investigations of the shelf and the continental slope off Portugal and Morocco, as well as the Gettysburg Bank. In particular, the temporal and spatial variability of oceanographical and marine chemical parameters, the sediment thickness, gravity, and total intensity of the geomagnetic field, as well as the colonization of the sea floor by living organisms were measured.