Did the Mediterranean Sea desiccate numerous times?

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The Mediterranean Sea is underlain by a thick 'evaporite' which is overlain by hundreds of metres of sediment. The evaporite averages about 1 km thick and covers an area of 2.5 million km^2. It is locally exposed by uplifts in Italy and other areas around the Mediterranean Sea. 'Evaporite' is the name given to a water-soluble mineral sediment that is assumed to form from the concentration and crystallization of a body of water, such as sea water, when it evaporates. Because of the thickness and lateral extent of the evaporite, Hsü and colleagues conclude that the Mediterranean Sea must have evaporated numerous times in the past.[1,2] It was calculated that one drying of the Mediterranean Sea would produce only 60 m of evaporites, so to collect 1 km, the sea had to have dried out completely and be refilled 17 times. This period of drying-out is called the 'Messinian salinity crisis' and is 'dated' between 5.97 and 5.33 Ma ago—a period of only 650,000 years within the uniformitarian timescale. The desiccation of the Mediterranean Sea is generally accepted by uniformitarian scientists today, although this article will show that the idea is essentially an 'outrageous hypothesis'.

Desiccating Mediterranean Sea challenged

Although criticism has largely been ignored, it seems more scientists are becoming skeptical of the repetitive desiccation of the Mediterranean Sea.[3–5] There are various alternative scenarios proposed for the Messinian salinity crisis, including no drawdown of sea level, partial evaporation, and complete evaporation forming a basin 2,000–2,900 m below sea level. However, the evidence from the deposits is equivocal.[5,6] After re-examining all the deep-sea cores that have penetrated the top of the evaporate,[7] Lugli and colleagues claim that the Mediterranean Sea was never desiccated.[8] They add that the vertical sequence of the evaporites is not what is expected from desiccation, as some of the bacteria fossils in the deposits are considered to be marine and not just from brackish water. Lugli and colleagues agree with other researchers that the 'desiccation cracks' are tectonic, and further state that the supposed stromatolites in the carbonates below the evaporites are really the result of subaqueous gravity flows.[9] The interpretation that some of the interbeds are eolian deposits is disputed. Lugli and colleagues conclude:

> "The major portion of the evaporites collected by ODP and DSDP cruises are clastic or cumulate deposits that cannot provide clear bathymetric indications but do help us to exclude shallow-water and supratidal depositional environments and a total basinal desiccation."[10]

The evidence for the Messinian salinity crisis was not only the physical properties of evaporites that suggested desiccation, but also the canyons cut along the continental margin of the Mediterranean Sea. These canyons sometimes extend inland and are filled. They were believed by some to have been carved by river erosion through the continental shelf and slope during drawdown as the Mediterranean Sea dried out. The inland canyons are then believed to have been filled by a sea level rise during the Pliocene. Others now reinterpret these canyons as submarine canyons that did not need a river to erode them.[11] The infilled canyons, for instance in the Nile River Valley, more than 1,000 km inland, are not necessarily marine or dated Pliocene:

> "However, a careful reading of Chumakov's original paper (1967) reveals that the supposed marine origin and the Pliocene age of these infilling deposits were based only on the presence of a poor ostracod assemblage, actually consisting of non-marine taxa with wide age ranges."[12]

A new hypothesis

Some researchers, who believe the Mediterranean Sea was deep during the Messinian salinity crisis, have proposed a new hypothesis.[11] They suggest that the cascading of hypersaline continental shelf water down the continental slope resulted in an increase in deep-water salinity that precipitated out the salt and gypsum. There are modern analogs around the Mediterranean Sea and Persian Gulf. The hypothesis also is supposed to account for the mysterious erosion surfaces seen along the continental slope in seismic reflection profiles that have been used as evidence of subaerial erosion. The downslope cascading by sheet flow supposedly carved these widespread erosion surfaces.

However, these modern analogs are extensively smaller than what is needed to cause the huge evaporate deposit and the widespread erosion surfaces. Moreover, a numerical model showed that the hypersaline water would tend to converge and cascade down the submarine canyons, assuming they existed at the time, rather than down the slope as sheet flow.[11] These flows continued to erode the submarine canyons. One would expect more terrigenous deposits than salt or gypsum, which does not appear to be the case.

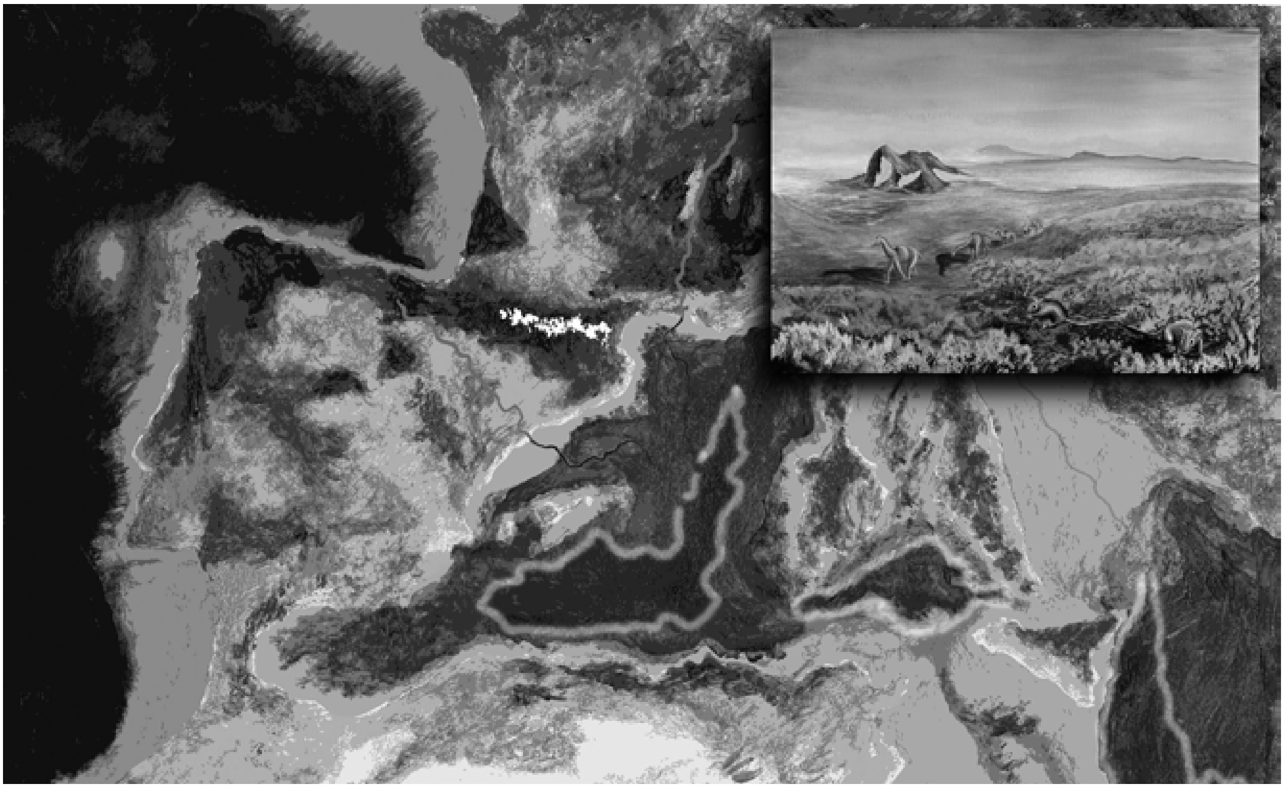

Figure 1. Artist's depiction of the nearly dry Mediterranean Sea after disconnecting from the Atlantic Ocean Rivers shows the deep canyons carved, and (now) extinct animals roaming the area.

Creation science implications

The controversy over the Messinian salinity crisis shows that the previous interpretations that the Mediterranean Sea desiccated numerous times was based on simplistic interpretations of presentday evaporites. It is interesting how researchers can appear to have much evidence in support of a claim which turns out equivocal on close inspection. As creation researchers, it is important to be skeptical of uniformitarian interpretations when it pertains to geological and paleontological features. This should especially be the case for the numerous paleoenvironmental deductions in secular geological literature.[13] I have commonly found that when examining a feature that appears to be contrary to the biblical worldview, the feature often contains contradictions to uniformitarianism and is supportive of an alternative mechanism.

The creation science explanation of such a huge deposit is that the 'evaporites' are actually precipitates. It's a model that needs further work. The area and volume of these deposits imply a catastrophic mechanism typical of a global Flood. The thick layer of precipitates would place the Flood/post-Flood boundary in this area in the very late Cenozoic. Noah's Flood is the only mechanism that could produce such a huge, thick deposit in a short time, not to speak of many of the other 'evaporites' worldwide.

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