The Holocene Sea-level of the Coast of Israel

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Land and underwater archaeological data such as:

Location map by Prof. J.K. Hall, Geological Survey of Israel

The Pre-Pottery Neolithic subaqueous site of 6,000 B.C.
The top of the site is at present at a water depth of 21m, and its bottom is at -25m.

Marine Michael shipwreck dated to about 2,000 B.C.

Mesopotamian port, Erech, south of Haifa.

Caesarea, the archaeological site and the remains of the ancient harbour. Ancient Caesarea was built by King Herod of Judah between 22 and 18 B.C.

A domestic well excavated in the inner harbour of Caesarea.

A core composed mainly of Dendroespum nitidum indicating the Holocene eustatic curve. The base of the Dendroespum reef is assumed to be an indicator of sea-level.

Bio-construct as sea-level indicator:

The results of the three research stages:

1. From 9,500 y BP to 2,000 y BP (Early Roman period)

The comparison indicates that at about 9,500 to 9,000 years BP sea-level was not higher than 45±5cm, and probably about 20cm, or lower. By 8,000 years BP sea-level had risen, but was still not higher than about 70cm, and was probably about 10cm, or lower. According to the model predictions, sea-level was still lower than +3 to +4cm for 5,000 years BP, and remained below its present level until about 3,000 to 2,000 years BP.

2. From 2,000 y BP to about 700 y BP (end of the Crusader period)

The Caesarea reef indicates that about 2,000 years BP sea-level was at its present level, while during the Crusader period it was at or above its present level (+5 to +7cm). During the Crusader period coral reef may have been lower than today by about 40cm (+7cm).

3. The last Millennium

Sea-level reached its present elevation (+30-15cm) at about 2,000 y BP, while during the Byzantine period it was at or above the present level (about ±50cm). During the Crusader period sea-level may have been lower than today by about ±40cm.

Conclusions:

a. Sea-level has been lower by about ±30cm than the present level since about 700 y ago, stayed lower for few hundred years, and rose by about 20-25cm during the 20th century.

b. The tectonic factor along the coast of Israel has been negligible for the last 9,500 years.

c. Sea-level has been lower by about ±30cm than the present level since about 700 y ago, stayed lower for few hundred years, and rose by about 20-25cm during the 20th century.

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