



Geoarchaeological evidence of Late Holocene landuse and water management in the ancient Salut oasis (Sultanate of Oman)

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After the Mid-Holocene transitions, the North African and Arabian deserts saw the formation of the oases that became landscape features attractive for human groups. In the Late Holocene, Saharan and Arabian desert oases hosted and sustained large communities that experimented new forms of landuse, including intensive agriculture and strategies for water management. In this contribution we report new data on the introduction of intensive agriculture and evolution of irrigation systems in the ancient oasis surrounding the citadel of Salut in the northern Sultanate of Oman. In the region, intensive agriculture started during the Bronze Age and continued with some fluctuations up to the Islamic period. In the ancient Salut oasis we have evidence for a continuous evolution of irrigation methods. In the Bronze Age, cultivations were sustained by surface irrigation systems, whereas since the Iron Age surface irrigation systems were replaced by the aflaj. The latter is the surface/underground system adopted in the Levant, Arabian Peninsula and western Asia to collect water from deep piedmont aquifers and redistribute it to the fields located in the lowlands. Geoarchaeological evidence suggests that the aflaj were in use for a long period in the ancient oasis surrounding the citadel of Salut. U/Th dating of calcareous tufa formed in the underground tunnels of the aflaj indicates that they were used between ca. 540 BCE and 1150 CE. After ca. 1150 CE the size of the oasis shrank substantially. Finally, during the late Islamic period, a surface irrigation system – an aqueduct descending from the piedmont of a mount – was re-established to secure water supply to the oasis.