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The collapse of the Terramare culture (Northern Italy): a question of climate change or human overexploitation of natural resources?

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Abstract

The Terramare civilization developed in the Po Plain of northern Italy between the Middle and the Recent Bronze Ages (XVI–XII cent. BCE). Settlements were banked and moated villages, located in the alluvial plain of the Po River of northern Italy, mostly in present-day Emilia Romagna. The Terramare economy was based upon cereal farming, herding, and metallurgy; moreover, Terramare settlements relied on a well-developed management of water and wood resources and established a wide network of commercial exchange between continental Europe and the Mediterranean region. This civilization lasted for over 500 years, suddenly collapsing at around 1150 years BCE, in a period marked by a great societal upheaval throughout the whole Mediterranean area. The timing and modalities of the collapse of this Bronze Age culture are widely debated, and a combined geoarchaeological and palaeoclimatic investigation – the SUCCESSO-TERRA Project – is shedding new light on this conundrum. We are investigating two main Bronze Age sites in Northern Italy: (i) the Terramara Santa Rosa di Poviglio, and (ii) the San Michele di Valestra site, which is a coeval settlement outside the Terramare territory, but in the adjoining Apennine range. Human occupation at San Michele di Valestra persisted after the Terramare crisis and the site was settled with continuity throughout the whole Bronze Ages, up to the Iron Age. The combined geoarchaeological, palaeoclimatic, and archaeobotanical investigation on different archaeological sites and on independent archives for climatic proxies (offsite cores and speleothems) highlights the existence of both climatic and anthropic critical factors triggering a dramatic shift of the land use of the Terramare civilization, which was mainly based on a radical deforestation and intensive, irrigation-supported agriculture. The overexploitation of natural resources became excessive in the late period of the Terramare trajectory, when also a climatic change occurred. A fresh speleothem record for the same region suggests the occurrence of a short-lived period of climatic instability followed by a marked peak of aridity. The unfavourable concomitance between human overgrazing and climatic-triggered environmental pressure, amplified the on-going societal crisis, likely leading to the breakdown of the Terramare civilization in the turn of a generation.