

Exploitation of Alpine copper deposits in prehistoric and protohistoric times

(Proposer: Prof. Gilberto Artioli)

The recent results of the mineralogical, geochemical, and isotopic investigations of available archaeo-metallurgical evidence in the Alps during the 3rd and 2nd millennia BC provide a working model for the interpretation of the metallurgical exploitation of the Alpine deposits.

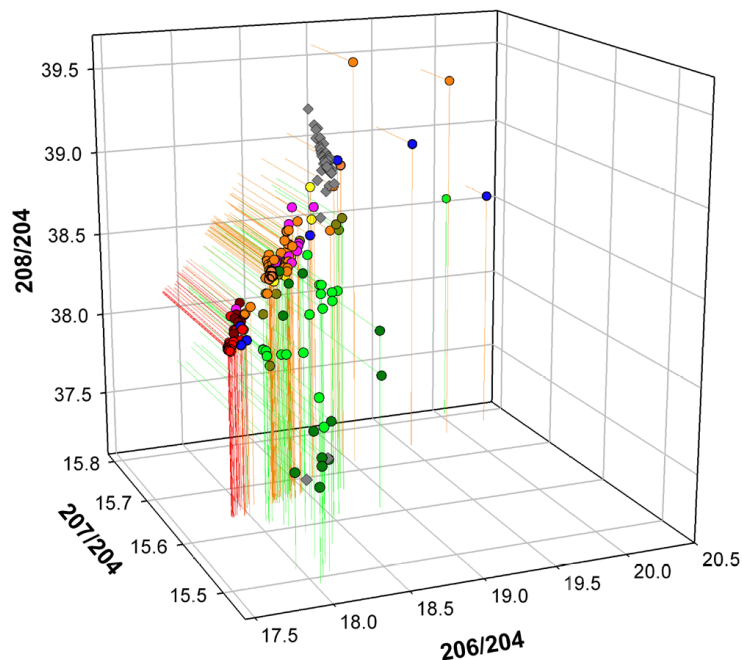
There is no evidence of Alpine copper circulation in Northern Italy before the late Copper Age (2800-2500 BC), and based on the widespread occurrence of copper smelting slags a significant mass production of the metal is observed that is apparently synchronous with the Beaker event. A surprising lack of archaeo-metallurgical activity follows in the Early Bronze Age, then starting from the Middle Bronze Age a rapid and capillary exploitation of the South-Eastern Alps copper deposits makes the Alpine area one of the major copper suppliers of Bronze Age Central Europe.

Within this recently developed interpretive frame, several details are still escaping detailed understanding: (1) is the beginning of Alpine copper metallurgy chronologically linked to the Beaker cultural event, or just expanding through it?, (2) what is the origin of the Early Bronze Age metallurgical crisis?, (3) can we couple the chemical analysis of the copper/bronze object to the mineral assemblages of the known sulphide deposits?, (4) Can we interpret element partitioning during sulphide smelting?

Such questions will be face by detailed analysis of selected archaeological slags and metal objects, and by closely compare the results with the mineralogical and geochemical data available for the mineral assemblages of the deposits. Lead isotopic ratios will be the main tracers to link objects and deposits.

Collaborations within national and international projects are warranted: CNRS-PSL, Ecole Normale Supérieure de Paris (F), Newcastle University (UK), Universität Bern (CH), Museo Archeologico dell'Alto Adige (I), Museo Friulano di Storia Naturale (I)

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3-D plot of the LI data for Alpine copper deposits