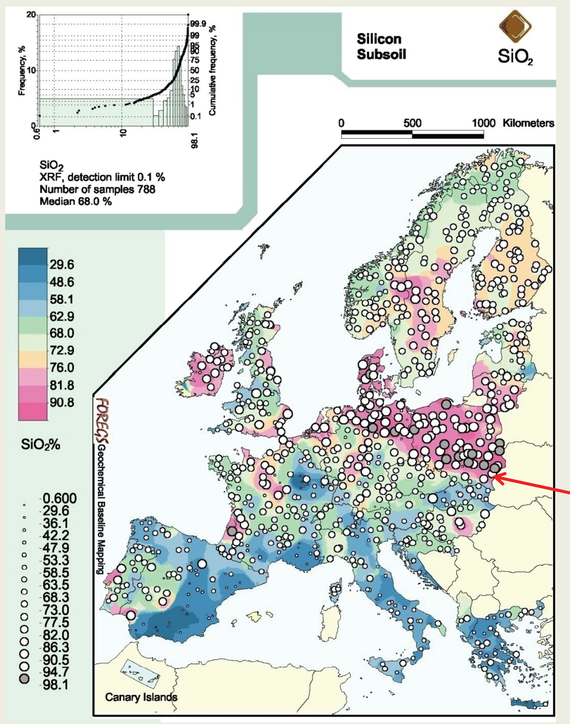
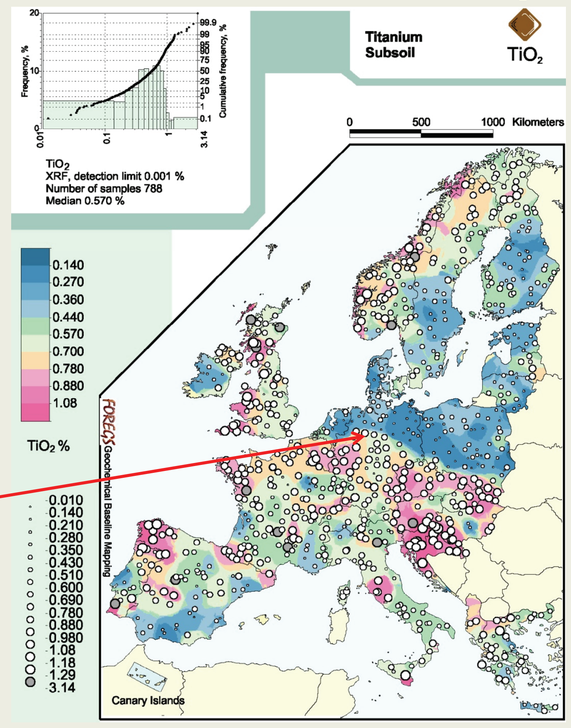
IUGS/IAGC Task Group on GLOBAL GEOCHEMICAL BASELINES

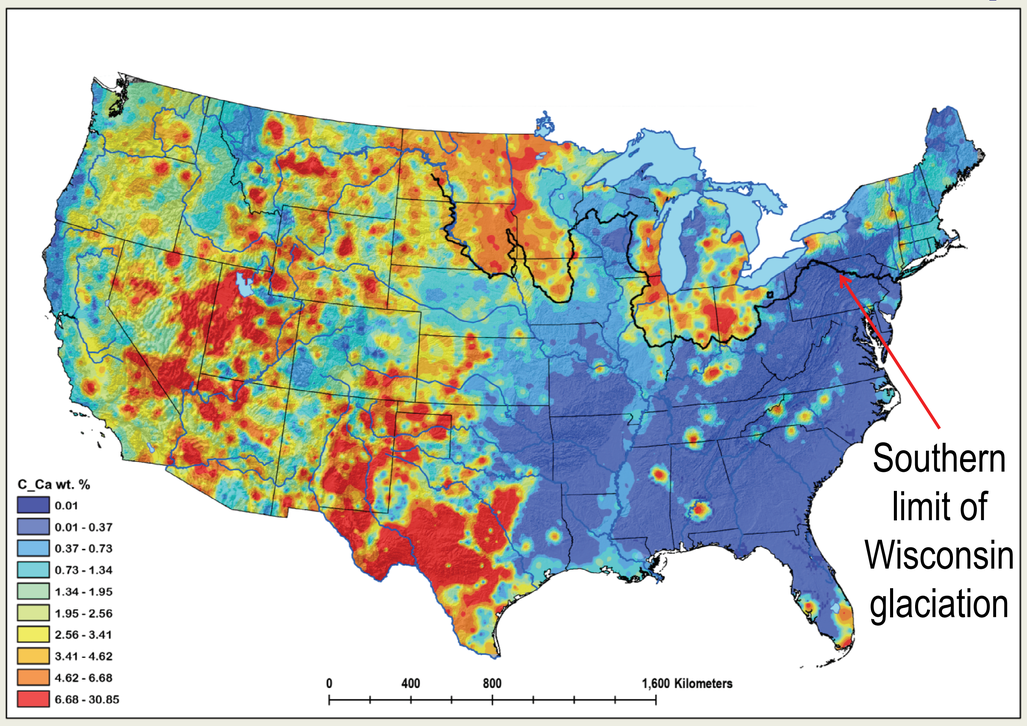
FOREGS/EuroGeoSurveys Geochemical Atlas of Europe





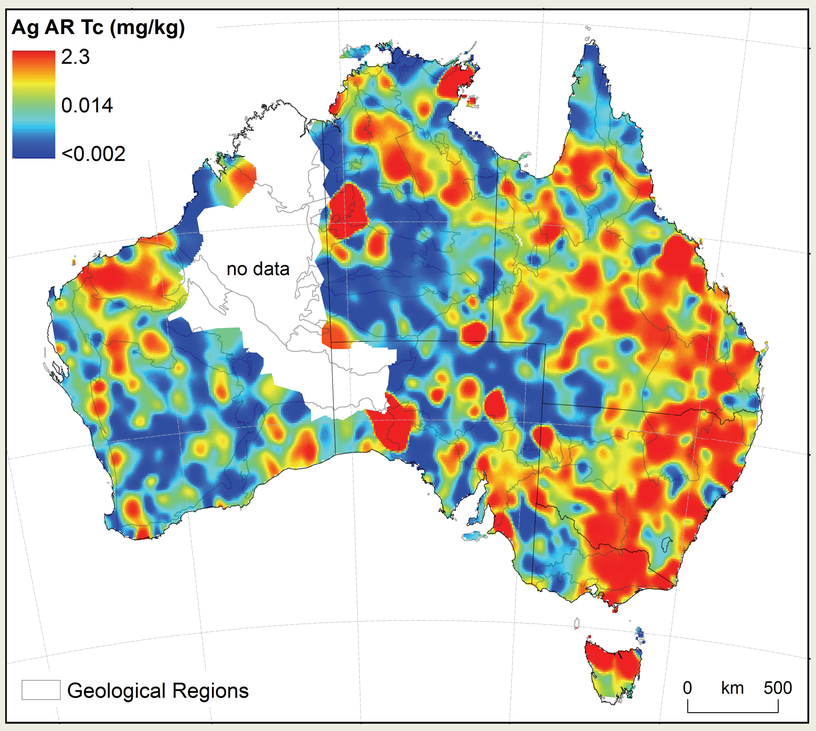
Southern limit of glaciation in Europe

North American Soil Geochemical Landscapes

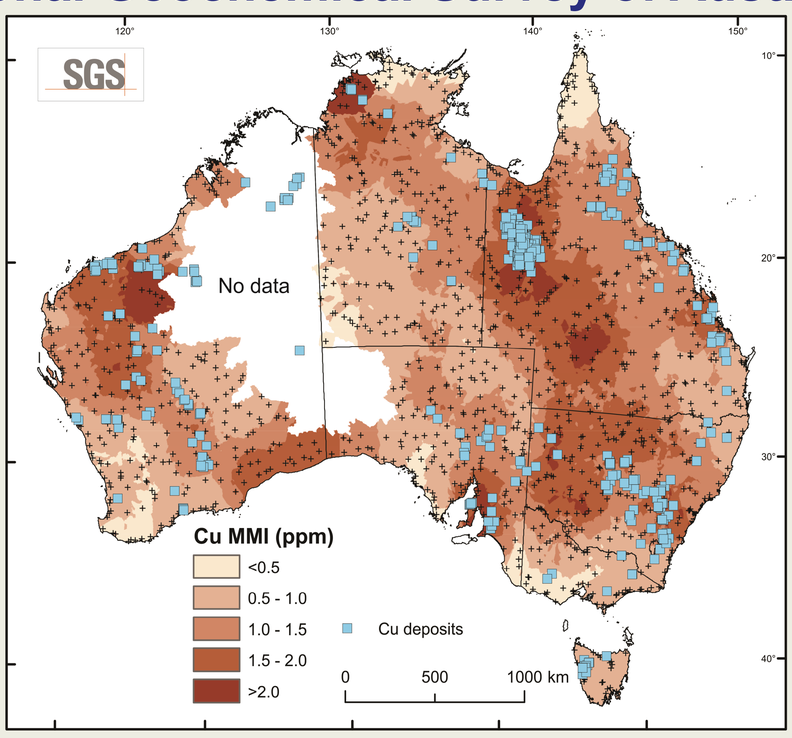


Maps of deep residual soil samples showing the southern limit of glaciation in Europe and United States of America (USA). In Europe, the glacial sands are rich in silica (SiO_2) and poor in titania (TiO_2), while in the USA the glacial sands are rich in calcium (Ca).

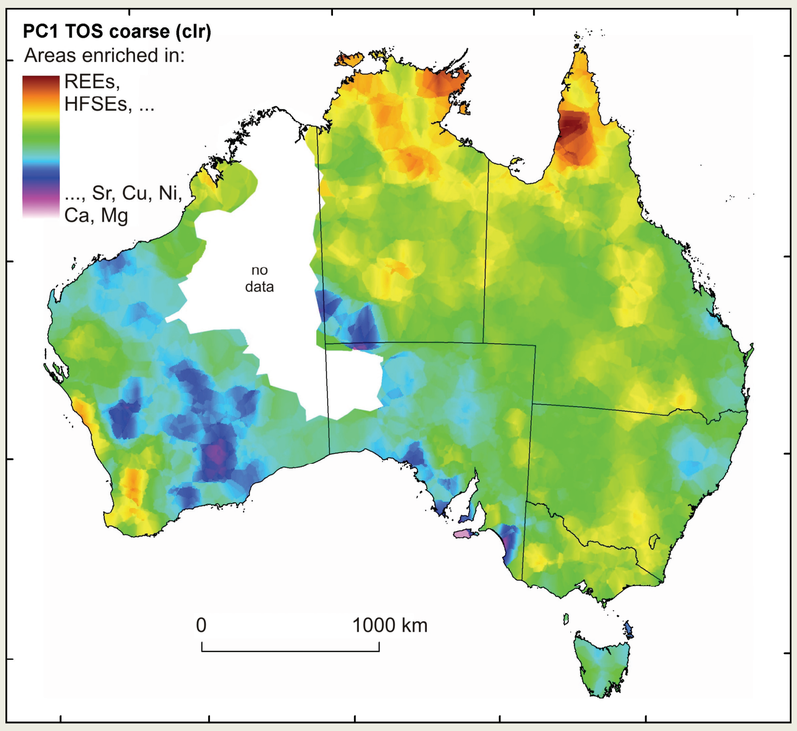
National Geochemical Survey of Australia



Map showing the distribution of aqua regia extractable silver (Ag) in the <2 mm fraction of Top Outlet Sediment samples (0-10 cm). The main known base metal (Ag, Pb, Zn) provinces of eastern Australia, Tasmania, Mount Isa/McArthur Basin, Broken Hill/Gawler Craton generally correspond to elevated Ag concentration in the surface regolith; though a few areas with no known major deposits could well warrant further investigation.

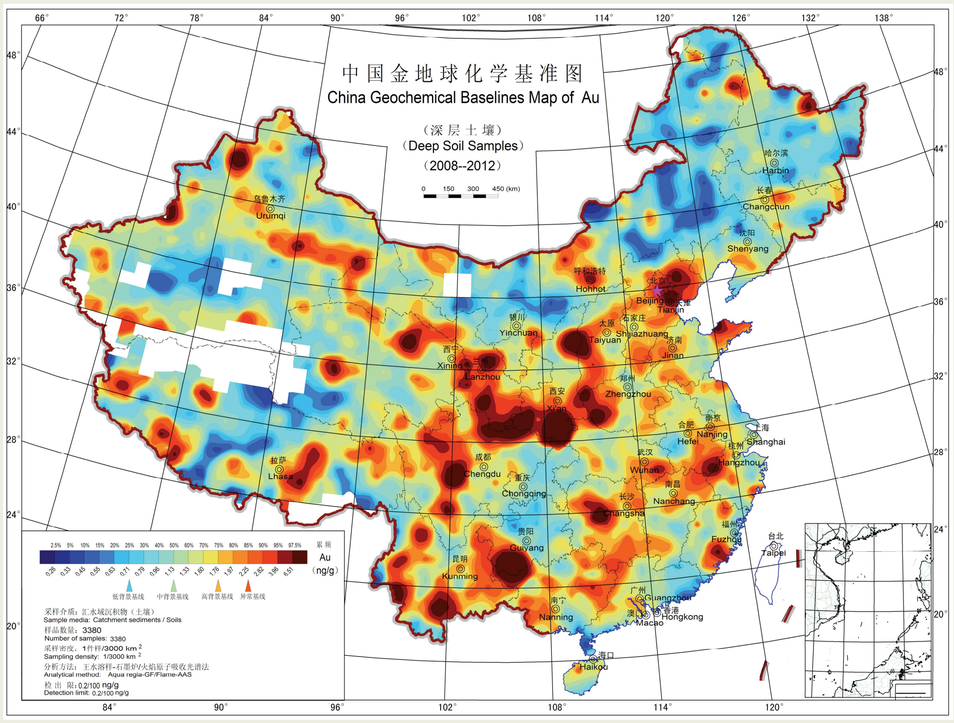


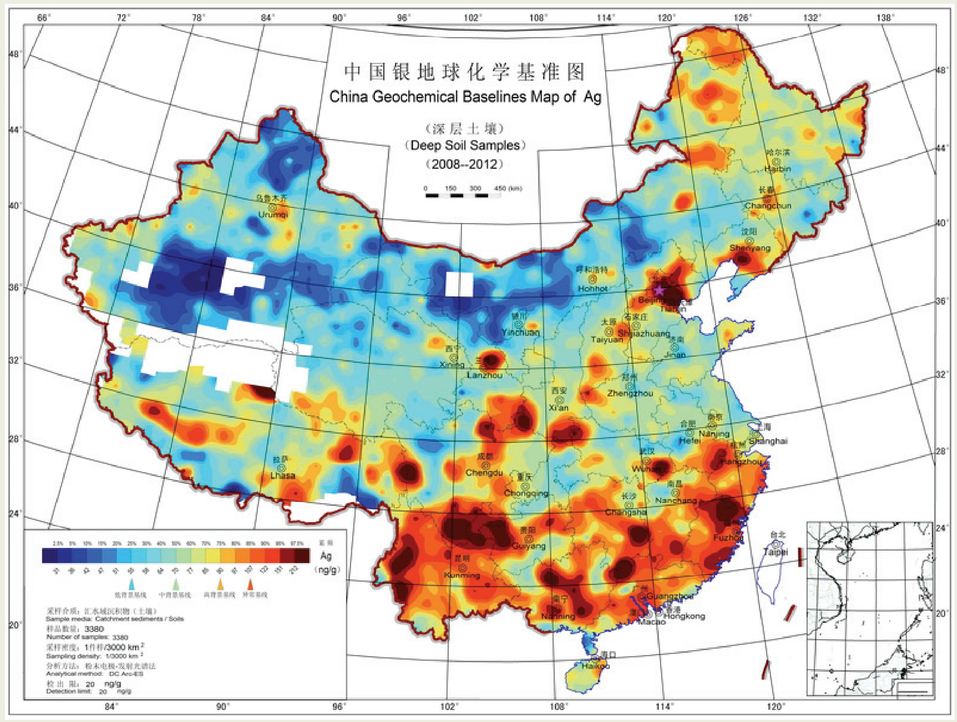
Map showing the distribution of weakly bound copper (Cu) in the <2 mm fraction of Top Outlet Sediment samples (0-10 cm). The Mobile Metal Ion™ (MMI) partial extraction method is designed to pick up very low concentrations of metals that may have migrated upward (or laterally) through the regolith over time and become loosely adsorbed onto the particle surfaces. Note the generally good agreement between high MMI Cu areas (darker brown) and the distribution of major known Cu deposits (blue squares).



Map showing the composition of <2 mm Top Outlet Sediment (TOS; 0-10 cm) samples, as the first Principal Component (PC1) performed on centred log ratio (clr) transformed data, which accounts for 31% of the variance. The PC1 eigenvector ranges from a Mg, Ca, Ni, Cu and Sr association at the negative end (cool colours) to a Rare Earth Elements (REEs; e.g., Er, Yb, Dy, Ho, Gd, Tb, Pr, Ce) and High Field Strength Elements (HFSEs; e.g., Y, Lu, Nb, Hf, Zr) association at the positive end (warm colours). The distribution of these associations matches well the lithological controls over the continent and subsequent modifications through extensive weathering.

China Geochemical Baselines





Maps showing the distribution of total gold (Au) and silver (Ag) in the <2 mm fraction of deep alluvial soil or floodplain sediment.

RELEVANT FOR:

- Mineral Exploration
- Agriculture
- Forestry
- Land use policy
- Health related research
- Environmental Policy

Europe: http://weppi.gtk.fi/publ/foregsatlas/
USA: http://minerals.cr.usgs.gov/projects/soil_geochemical_landscapes/
Australia: http://www.ga.gov.au/about/projects/minerals/concluded/national-geochemical-survey

IUGS/IAGC Task Group on "Global Geochemical Baselines"
Mapping the Geochemistry of the Earth's Land Surface