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Neanderthal climate preferences: the need for a better chronology

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Project Focus




- 👉 Presence of Neanderthals and Anatomically Modern Humans
 - Diagnostic tool technologies
- 👉 Region of continental climate
- 👉 Range of site types
- 👉 Aim: improve temporal and environmental constraints

Progress to Date




- 👉 Fieldwork
- 👉 Interpretation and publication of existing data
- 👉 Documentation and Prioritisation
- 👉 Luminescence analyses
- 👉 Sedimentary analyses
- 👉 The search for tephra
- 👉 Dissemination

Fieldwork: Sites




- 👉 4 Areas/15 Sites
 - Don valley
 - Severski-Donets valley
 - Crimea
 - Northern Caucasus
- 👉 Caves & Open Sites
- 👉 Diverse palaeoenvironments

Fieldwork: Sampling



- 👉 OSL
 - Dating samples
 - Profiling samples
 - Field γ -spectrometry
- 👉 Contiguous sampling for tephra, granulometry and magnetic palaeointensity
- 👉 Opportunistic sampling for AMS ¹⁴C and TL

Existing Data

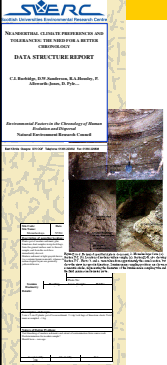


- 👉 Compilation and interpretation of existing records
- 👉 Pre-sampling assessment of sites for:
 - Archaeological significance
 - Stratigraphic integrity
 - Existing chronological framework
- 👉 Bringing existing data to publication

Documentation and Prioritisation

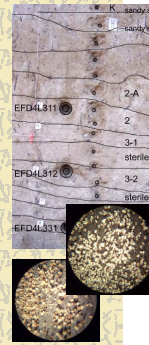
Data Structure Report:

- ✂ Site summaries
- ✂ Standardised records:
 - Sampling and dosimetry
 - Archaeological review
 - Palaeoenvironmental review
- ✂ Prioritisation for initial investigation

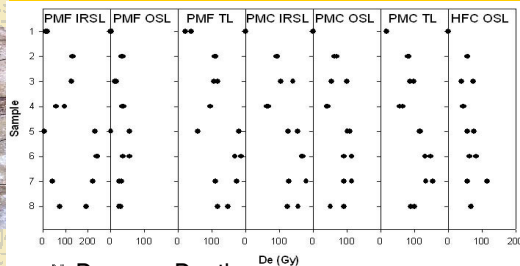


Luminescence Dating

- ✂ Challenging sediments:
 - Bleaching/Mixing
 - Dosimetry
 - Diversity
- ✂ Luminescence profiling:
 - Many small samples
 - Different mineral and grain size fractions
- ✂ Assessment of dating opportunities



Luminescence Profiling



✂ Dose vs. Depth

- trends, relative magnitudes, "pinch points"
- Assess datability & sedimentary process

Sedimentary Analysis

- ✂ Several techniques applied to the sediments:
 - Carbonate & Organic Content
 - Granulometry
 - Magnetic Susceptibility
 - Tephra Extraction
 - Pollen analysis
- ✂ Complementary information:
 - Link chronology and environmental records



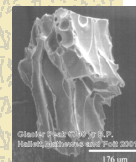
Tephra Sources

- ✂ EFCHED project's field sites are within the fallout ranges of a number of Pleistocene volcanic events.



Tephrochronology

- ✂ Discrete ash layers linked with known volcanic events
- ✂ Date and correlate sediments from different locations
- ✂ Location and identification:
 - **Crypto-tephrochronology**
 - **Geochemical Fingerprinting**



Tephra Analysis Technique

- 🔗 **Crypto-tephrachronology:**
 - Locate invisible tephra layers
- 🔗 Establish robust and sensitive protocol for tephra recovery:
 - Organic & carbonate removal + density separation
 - Quantitative
- 🔗 Correlation with marine cores

Dissemination Activities

- 🔗 Project rationale presented at “The Black Sea Region: Past, Present and Future” (*British Academy Black Sea Initiative and Istanbul Technical University*)
- 🔗 Abstracts submitted for the presentation of OSL procedures and results at LED 2005
- 🔗 Website (<http://www.gla.ac.uk/efched/>)
- 🔗 Collaborative meetings, seminars and workshops



British Academy Black Sea Initiative

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Conclusions

- 🔗 Aims and collaborative linkages well established
- 🔗 Fieldwork conducted and documented
- 🔗 Laboratory work under way
- 🔗 Dissemination activities planned and initiated
- 🔗 Will this lead to a better chronology? ...or... the need for a better stratigraphy!

