Collection, storage and presentation of 3S data: some examples from the Archaeological Computing Laboratory, University of Sydney

Andrew Wilson,
Archaeological Computing Laboratory

The International Symposium on Historical Research of Plank Roads and Applications of 3S Technology.
Hanzhong, 16 May 2007

Outline

- Site studies using 3S technology
  - Sydney *Time*Map
    - Museum interactive using GIS
    - Geo-referenced historical maps
  - Angkor
    - Remote sensing
    - GIS for sites and structures
    - Reuse of digital data
    - Monitoring site impacts
- Techniques
  - Mapping photographs with GPS
  - Documenting digital fieldwork

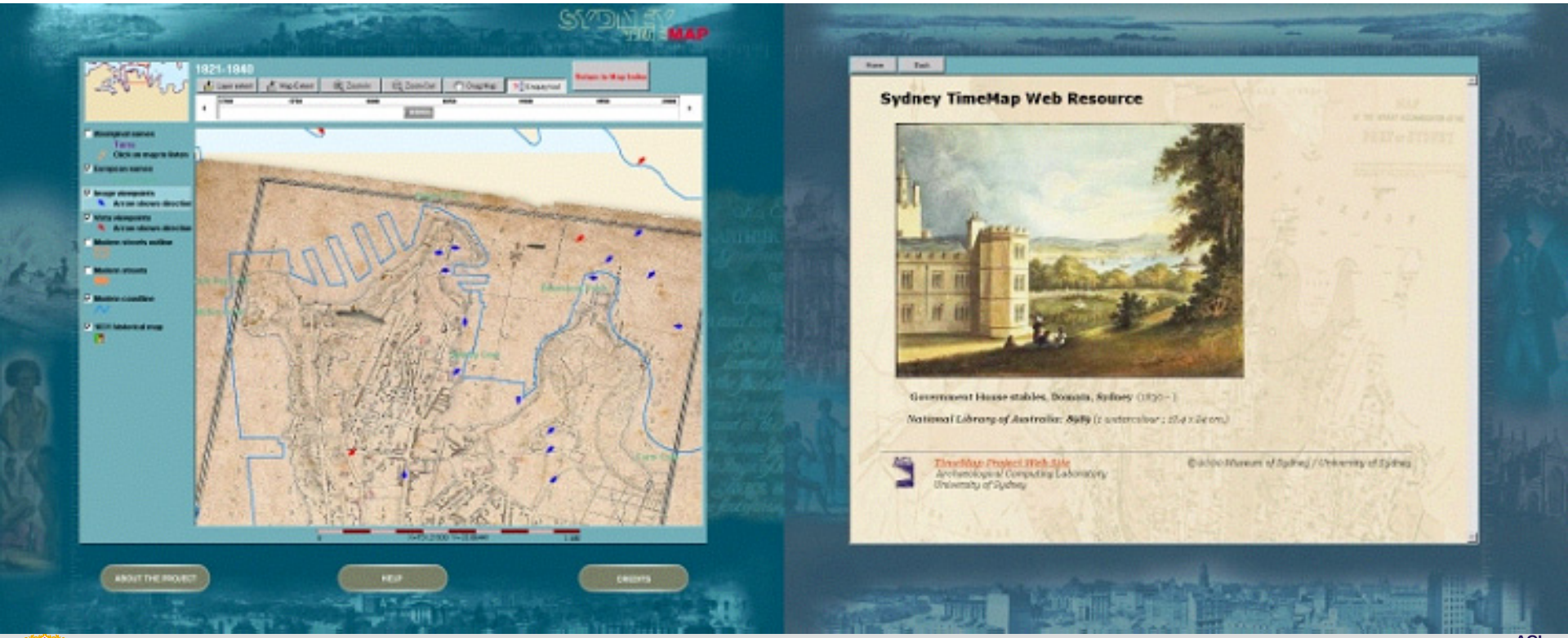
The Museum of Sydney on the Site of First Government House

Sydney *Time*Map - kiosk installation

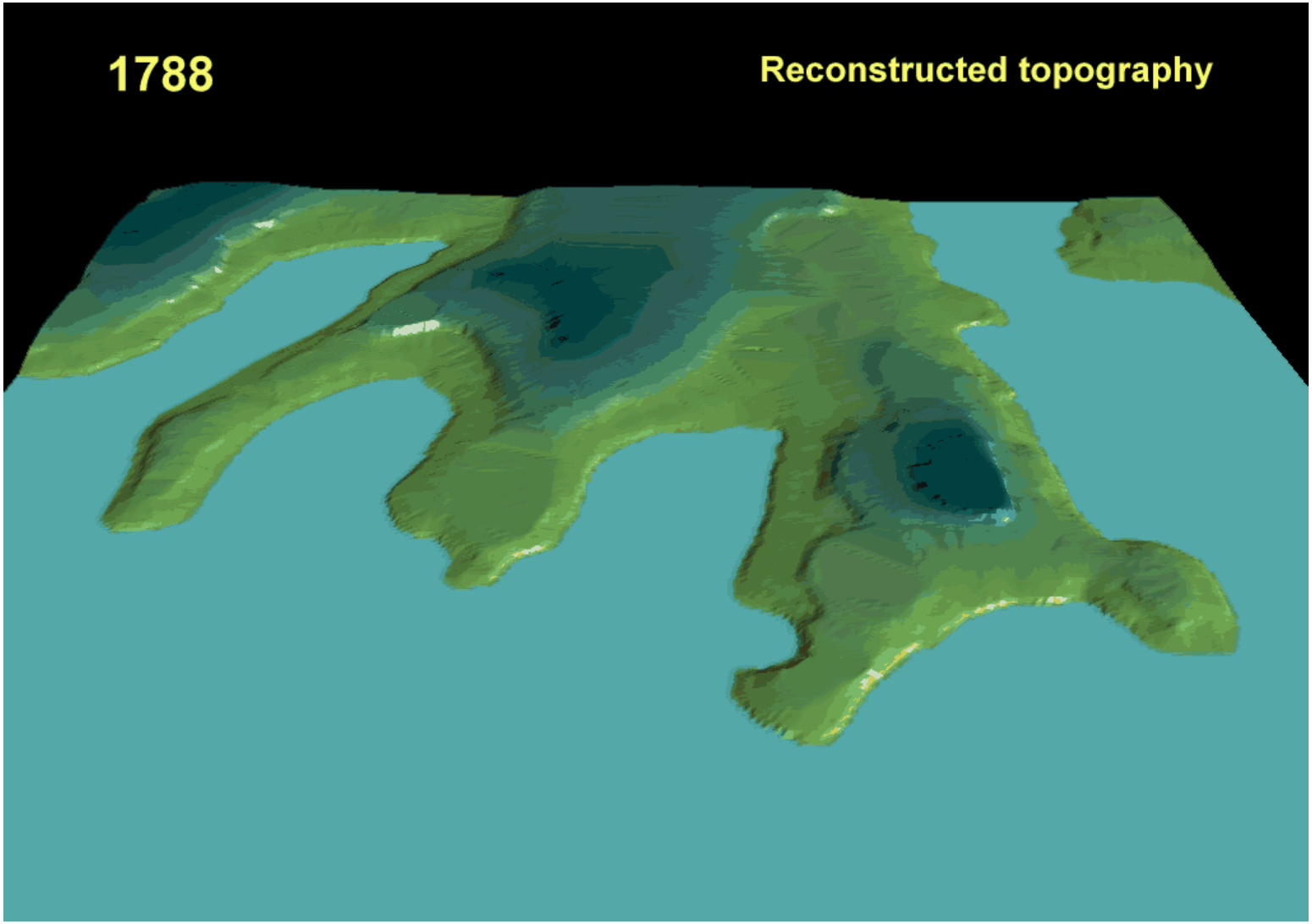
- Stand-alone interactive
  - Museum's Information Centre

Sydney *Time*Map - kiosk installation

- Access to map based resources
  - Normal GIS functionality
  - Time slider bar – selection by time



Sydney *Time*Map – historic maps



Greater Angkor Project

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- Project Aims
- Project Outcomes

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Welcome

Welcome to the web site of the Greater Angkor Project (GAP), an international, multidisciplinary research programme interested in the decline of urbanism at Angkor, in Cambodia. Specifically, the project is investigating the relationship between the vast extent of Angkor in the 12th to 16th centuries AD, land clearance for rice production and regional ecological damage both then and now. The study has implications for the past and the future health of the regional ecosystem, sustainable development and the management of Angkor as a national and an international cultural resource.

This web site provides a general overview of the project's objectives and outcomes in addition to providing a resource for students and professionals involved in the project. If the information you ne
if you would like further information, please email us at **gap@acl.arts.usyd.edu.au**

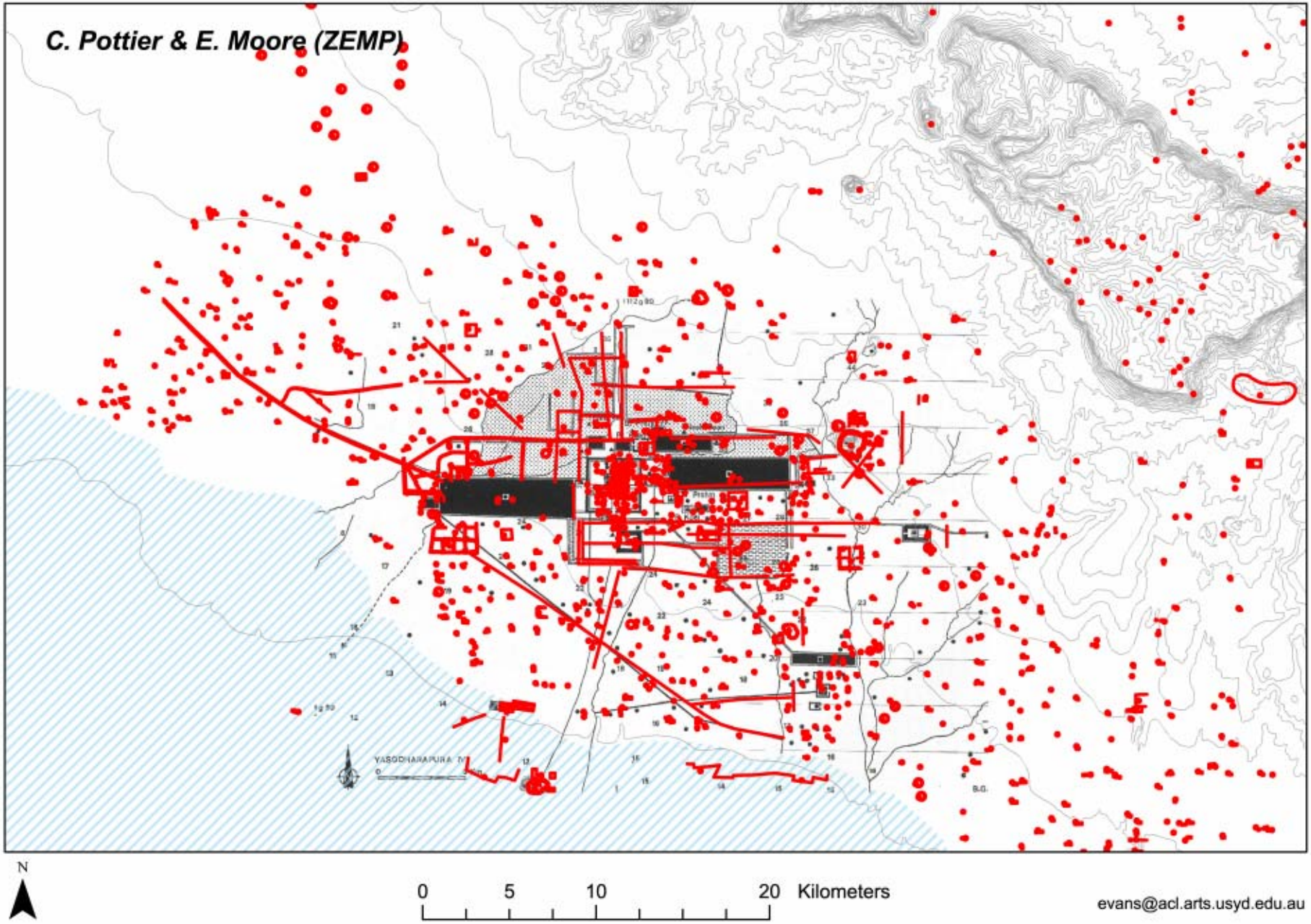
News, events and announcements will appear regularly within the **Activities** section so p
make sure to check out our **calendar of events**.

We will be hosting an international conference **Angkor - Landscape, City and Temple**
Sydney from 18-23 July 2006

Students and professionals looking to become involved in the project should consult
page.

Important: GAP project members should email the webmaster on the email below to ob
password in order to view special-access sections of this site. If you have a username ar
the panel on the left hand side of every page.

Members of the general public may also register with us to gain access to certain resour
byusing the "No account? Create one" link on the login panel at left.


C. Pottier & E. Moore (ZEMP)
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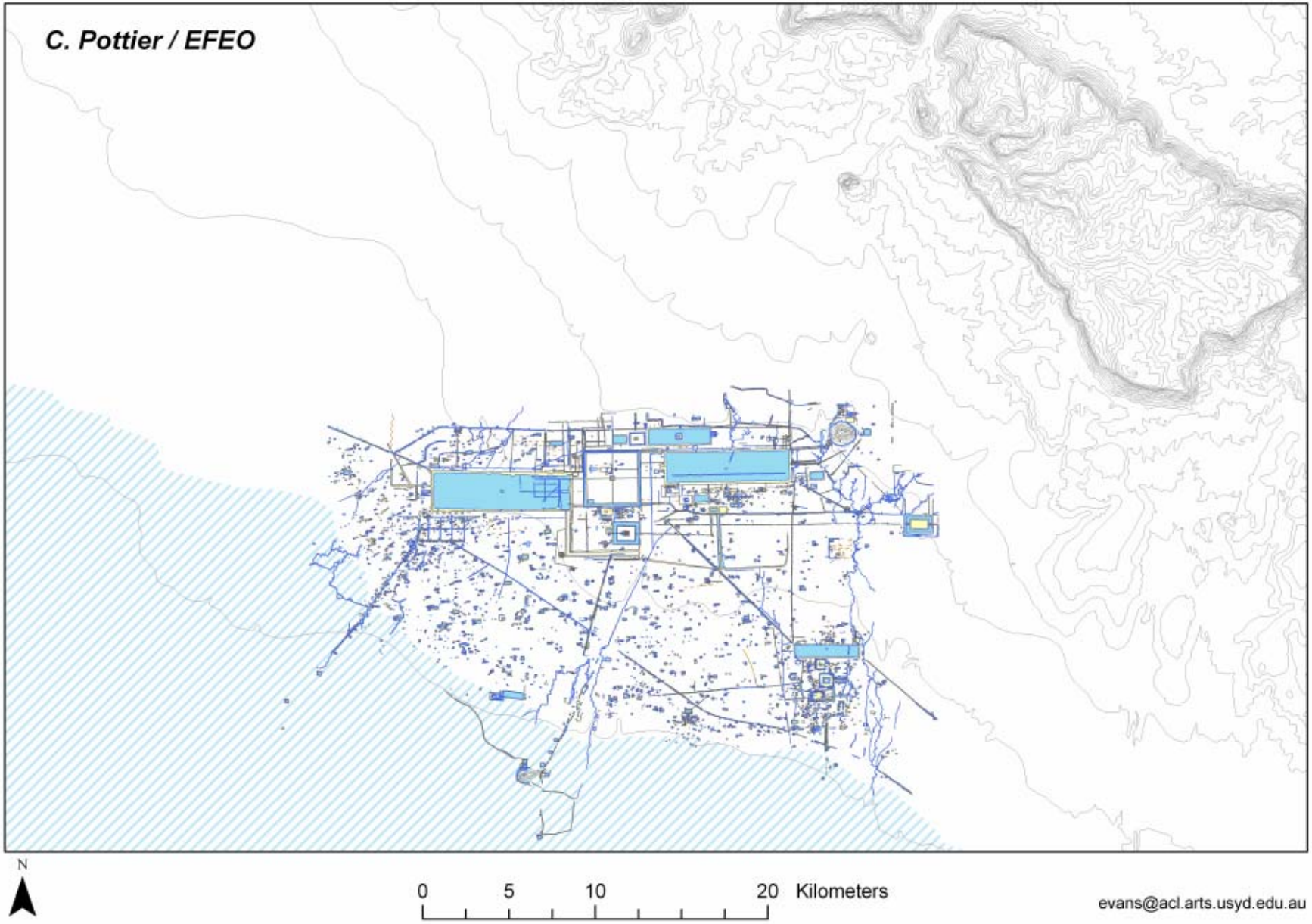
20 Kilometers
evans@acl.arts.usyd.edu.au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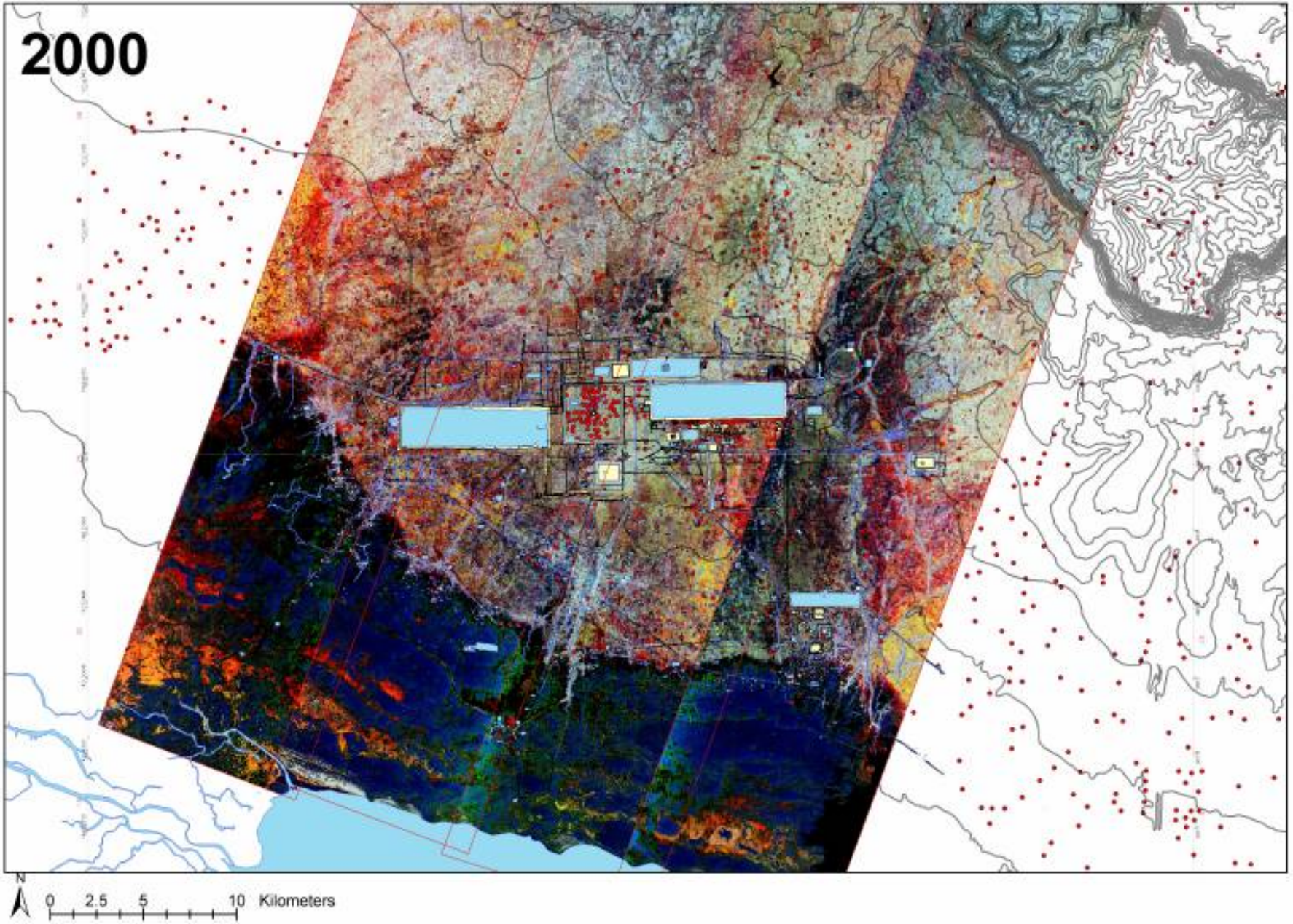
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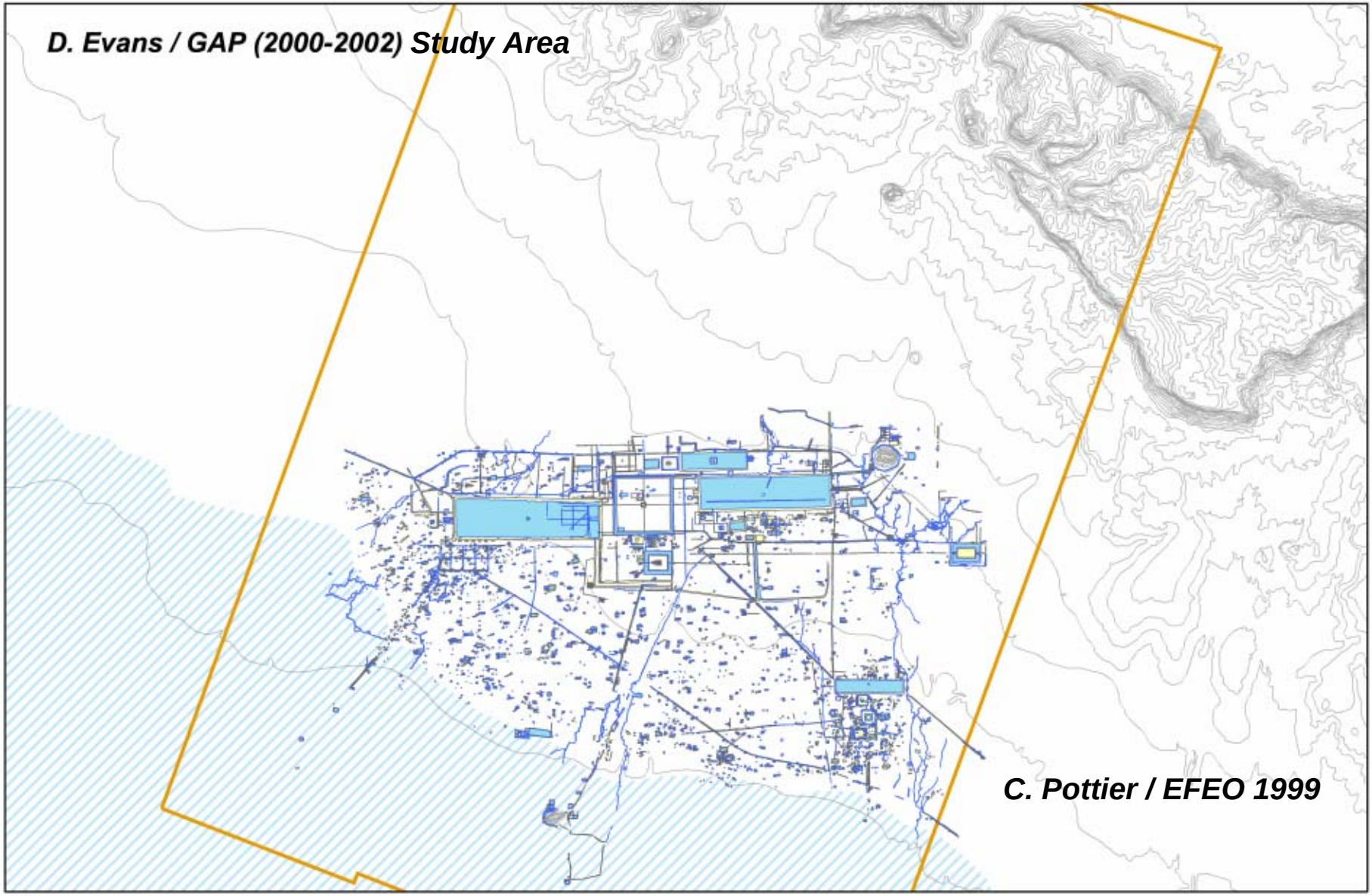
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C. Pottier / EFEO 1999
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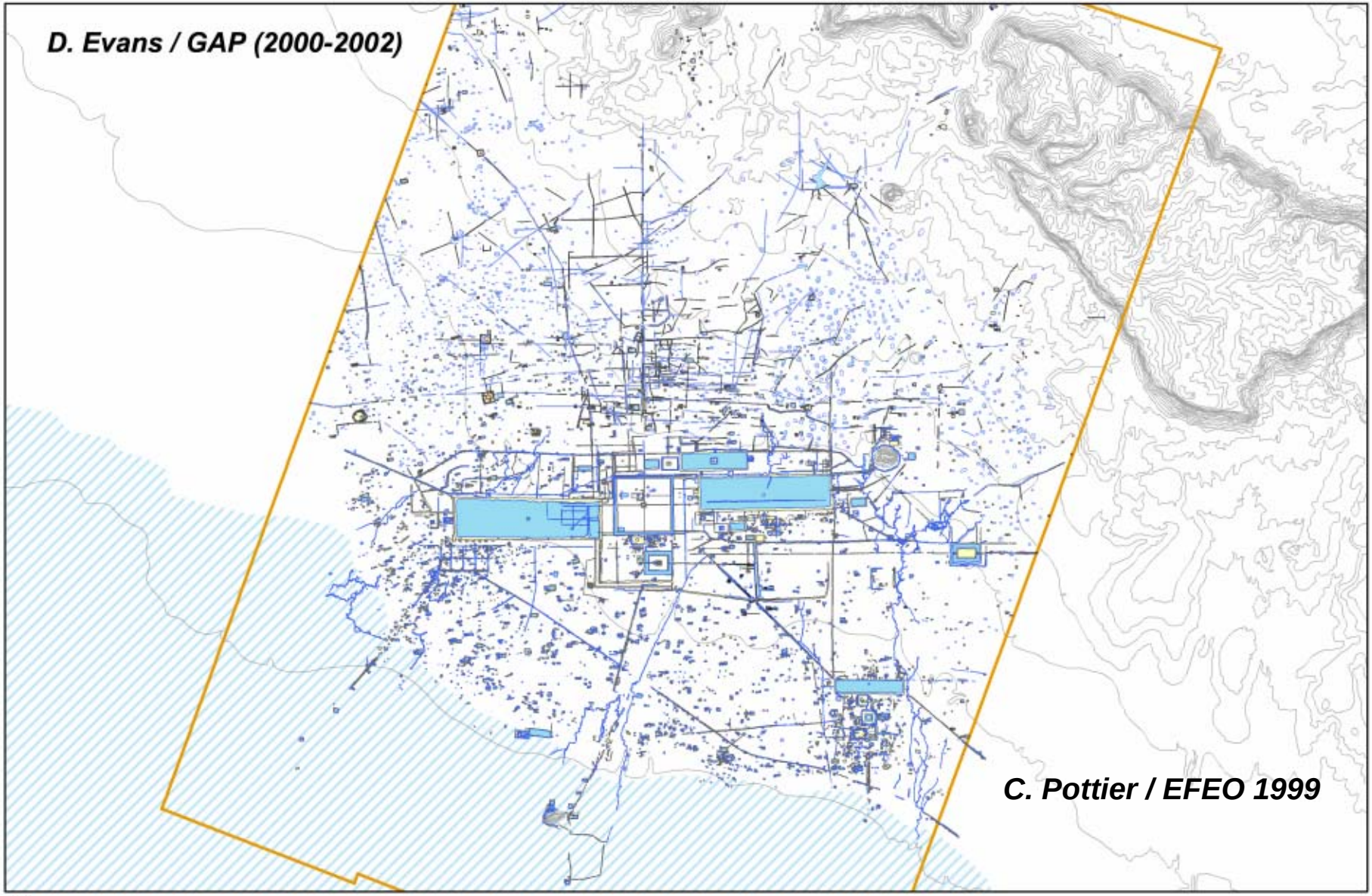
D. Evans / GAP (2000-2002)
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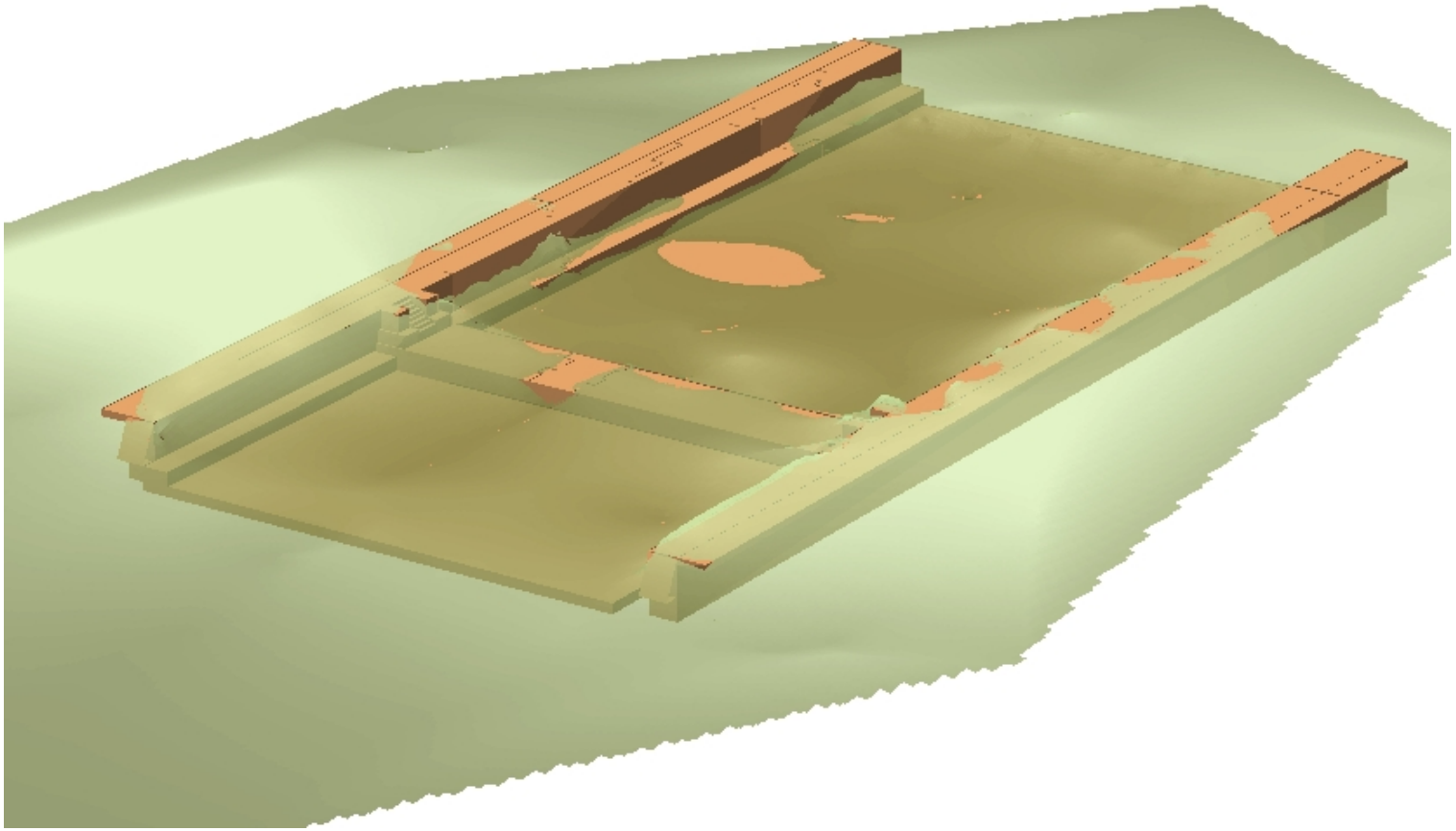
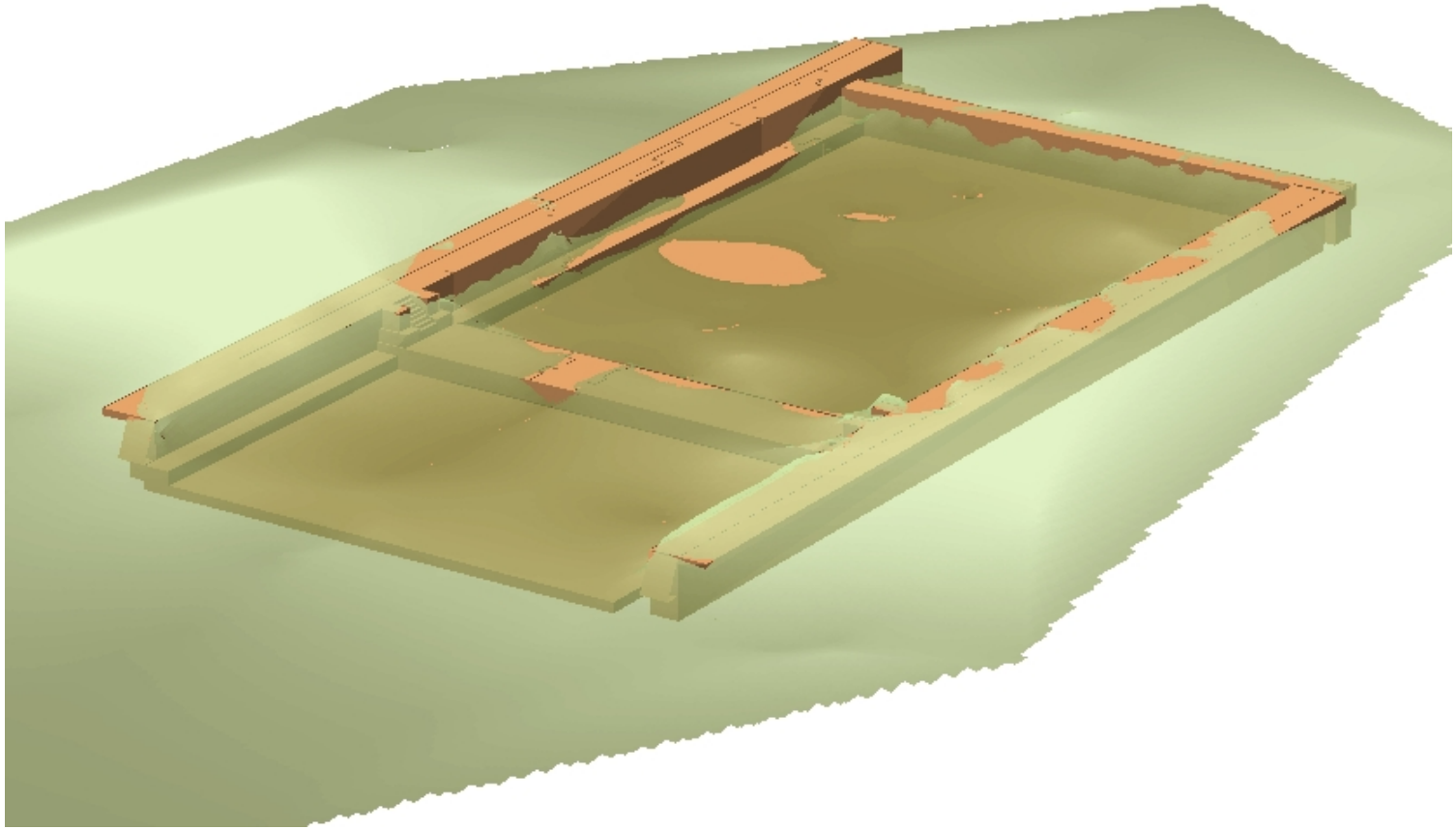
Angkor - Krol Romeas, spillway

Phase 1



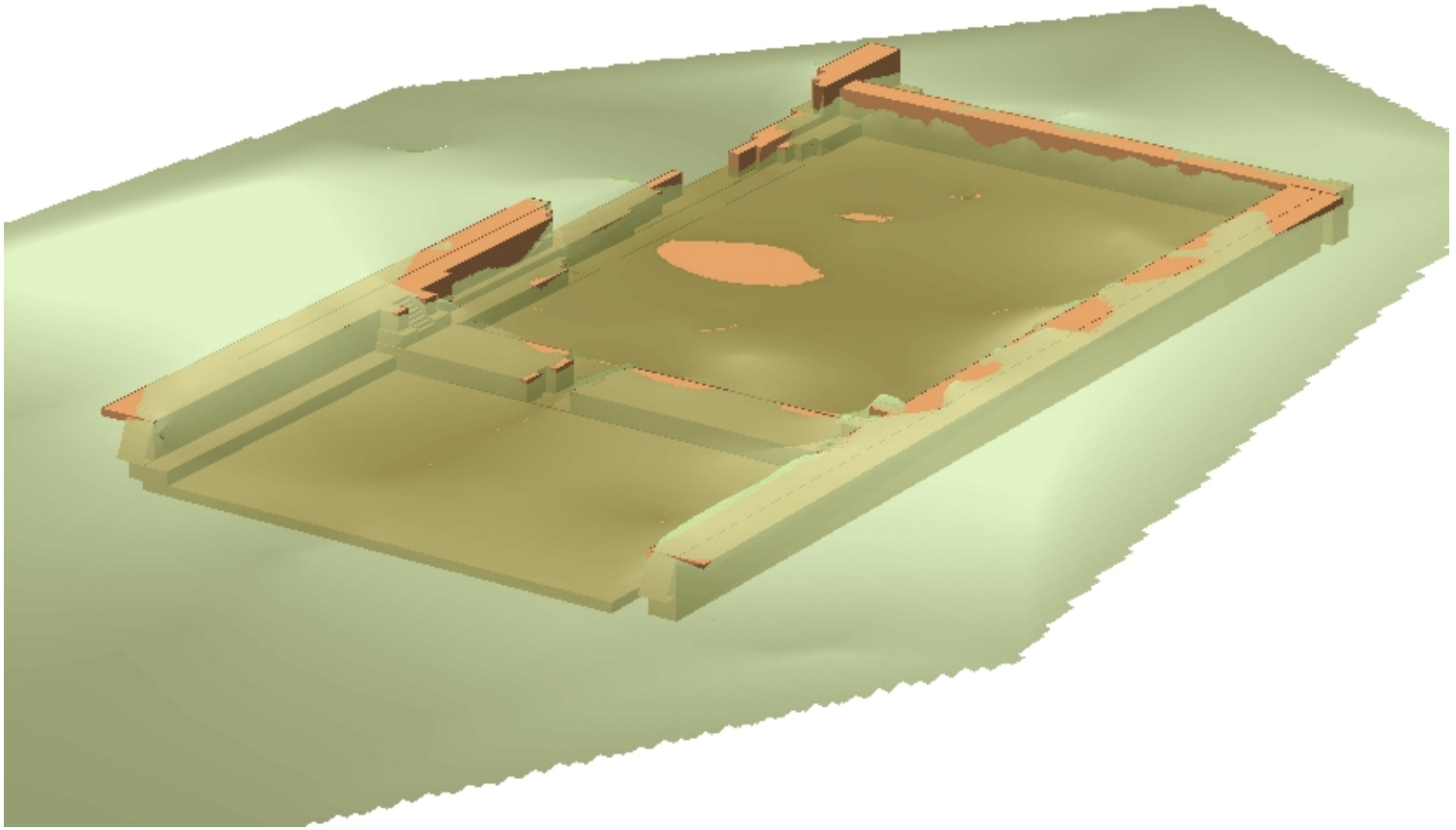
Angkor - Krol Romeas, spillway

Phase 2



Angkor - Krol Romeas, spillway

Phase 3



Angkor – West Mebon - now

Angkor – West Mebon - reconstruction

Angkor – West Mebon - animation

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Welcome

World Heritage conservation in developing countries is challenged by conflicting demands of preservation, economic development and social equity. Managing these demands requires monitoring of the dynamic interaction between natural environment, cultural heritage and contemporary society. Angkor, the great World Heritage site in Cambodia, epitomises the challenge. A joint Cambodian and inter
information monitoring system for site management using Angkor
past and future research, community values, national policies and
management and governance come together to reconcile the com

The Living with Heritage project is funded to A$1.2 million over 5
by the Australian Research Council and our Industry Partners.

Industry Partners

- APSARA Authority
- UNESCO (UNESCO Phnom Penh Office)
- Ecole française d'Extrême-Orient (EFEO) - Angkor
- Horizon Geoscience Consulting P/L
- Department of Environment and Heritage, Australian Gove
- Godden Mackay Logan Pty Ltd
- ESRI Australia
- Leica Geosystems
- Finnish Environmental Institute (FEI)

Angkor – traffic analysis

- (Simulation not present)

Mapping photographs with GPS

Digital camera used to take photographs

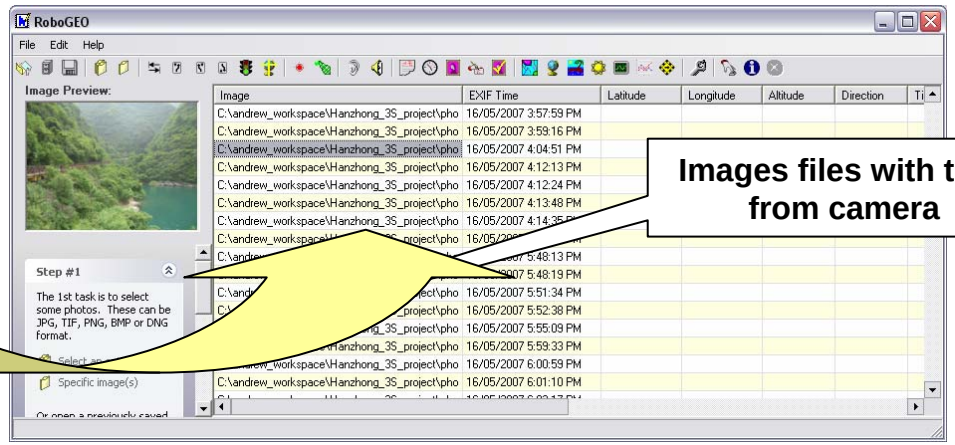
GPS continuously records location

Mapping photographs with GPS

Mapping photographs with GPS

During fieldwork photograph time display on GPS allow for synchronize both clocks

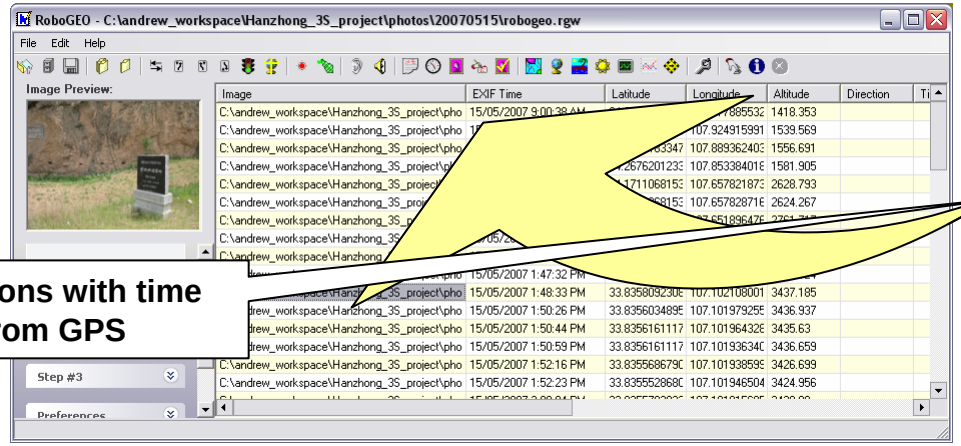
Mapping photographs with GPS



Images files with time from camera

Offset corrected by camera image of GPS time

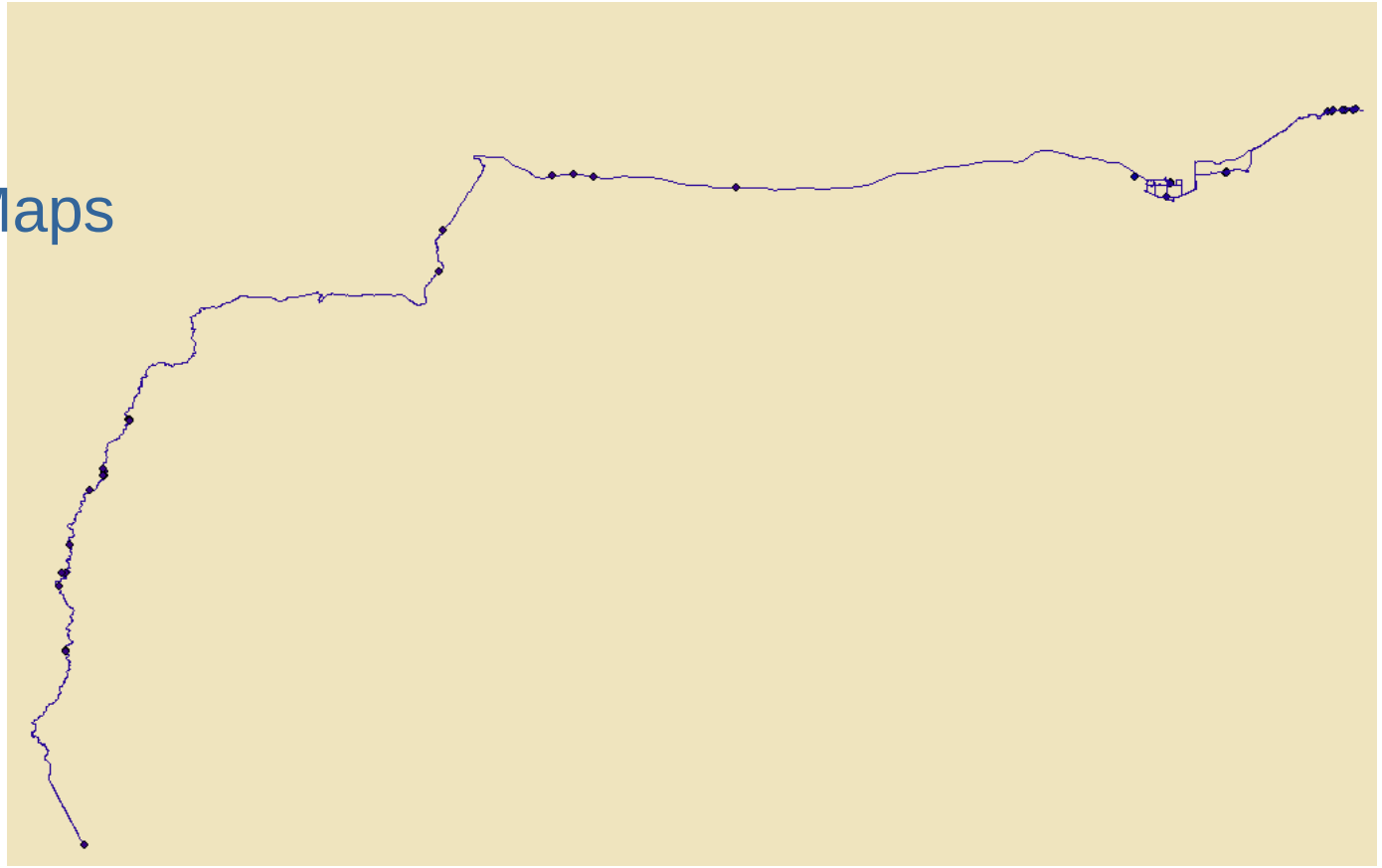
\+ or -



Locations with time from GPS

Mapping photographs with GPS

- Mapping
  - GIS
  - Google Maps
  - *Time*Map



How do we manage field data?

- In the field
  - After each collection session
  - Completion of fieldwork
- During analysis
  - Integrity original data
  - Updates and changes
  - New data derived from original

- Deposit of data for perpetual access

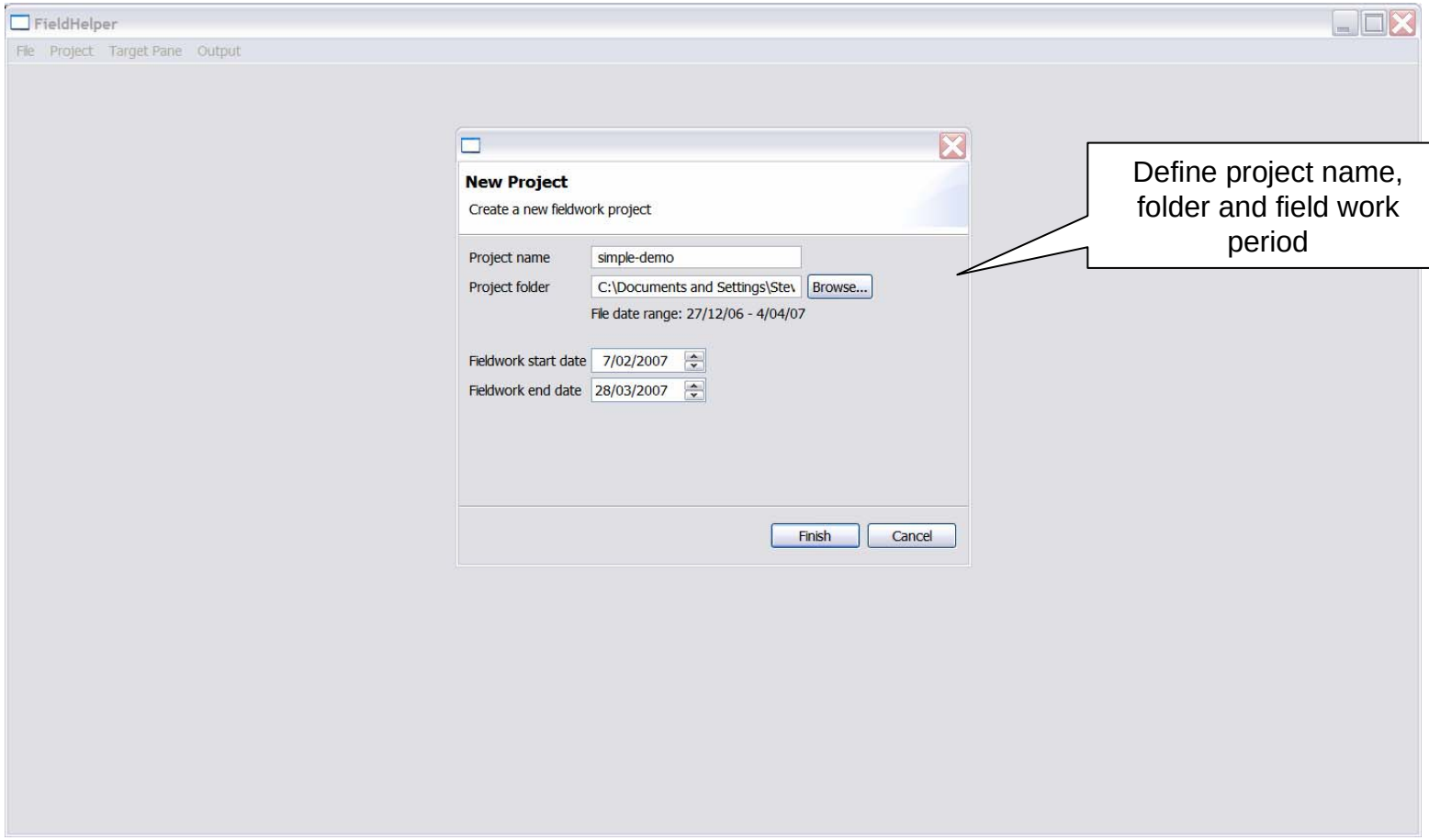
View of Taibai Mountain
Jai Li AD 1700

Field Helper

- Simple, desktop tool for organising fieldwork files and creating ingest packages for digital repositories
- Generic nature makes it potentially useful for other data collation tasks
- Cross platform, lightweight Java based. Makes good use of XML technologies
- Developed by the ACL for the Australian Partnership for Sustainable Repositories

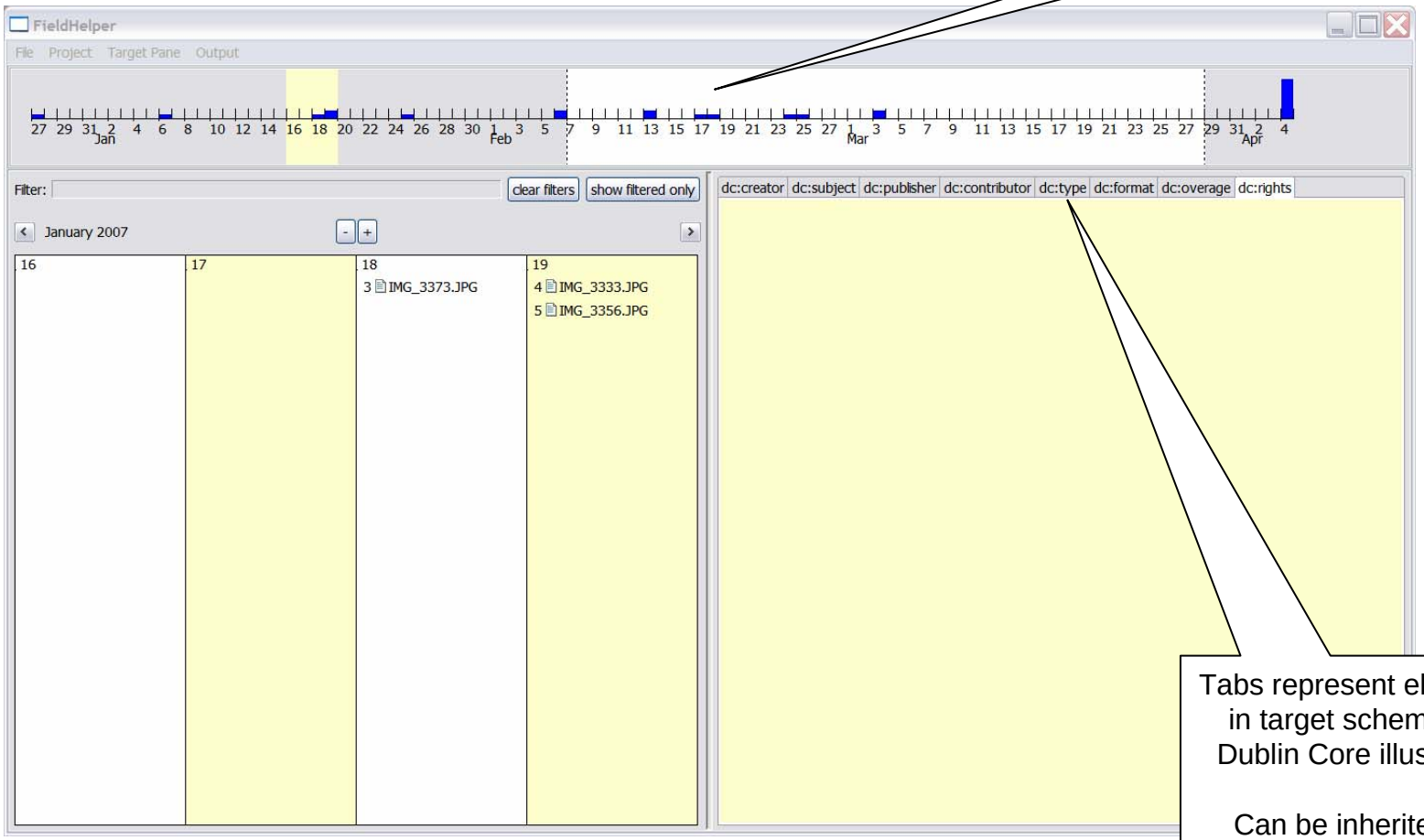
Field Helper

Field Helper



Field Helper

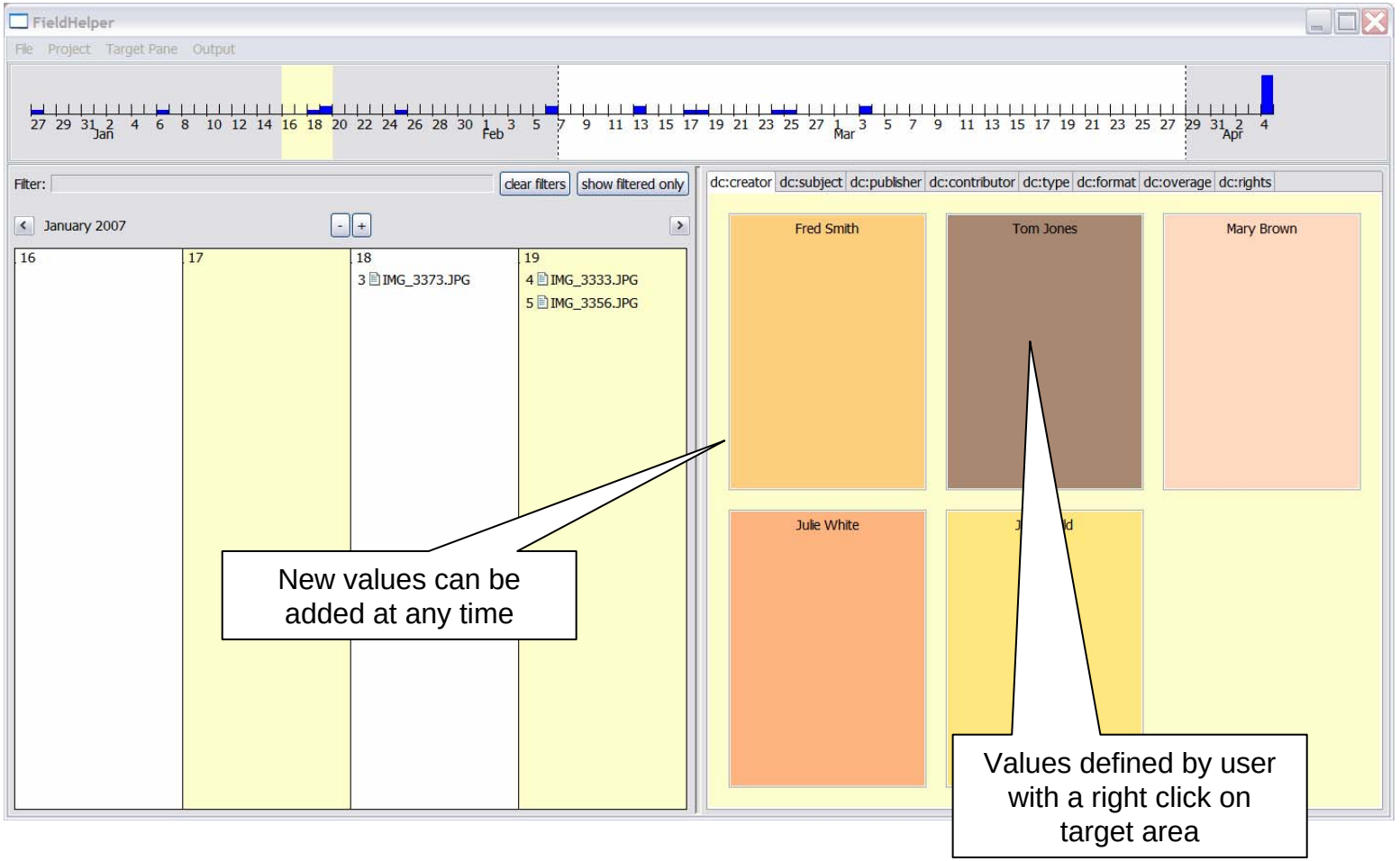
Project folder scanned for all files – results laid out on a time line



Tabs represent elements in target schema/s – Dublin Core illustrated

Can be inherited by default from root project or user defined with right click on tab area

Field Helper



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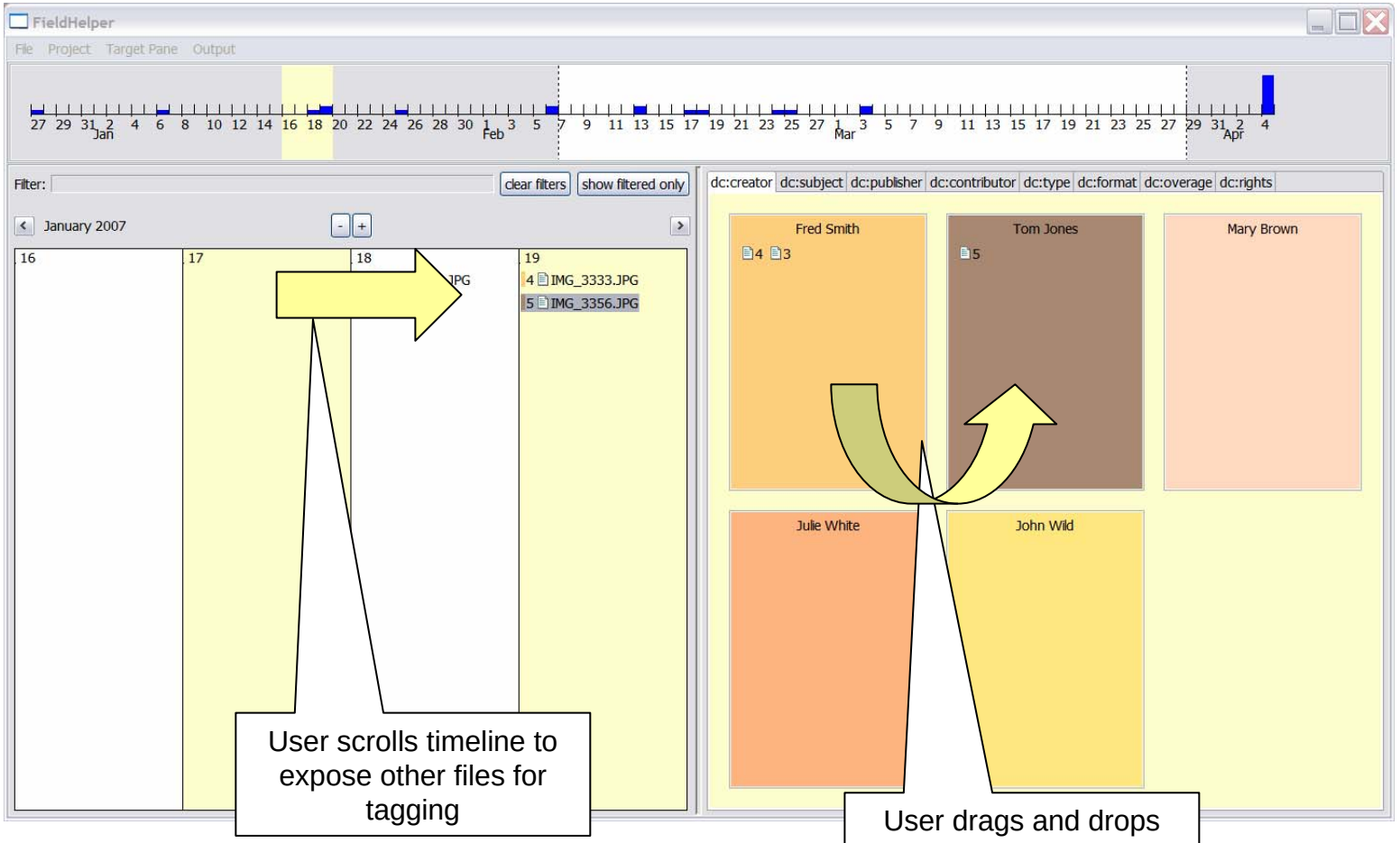

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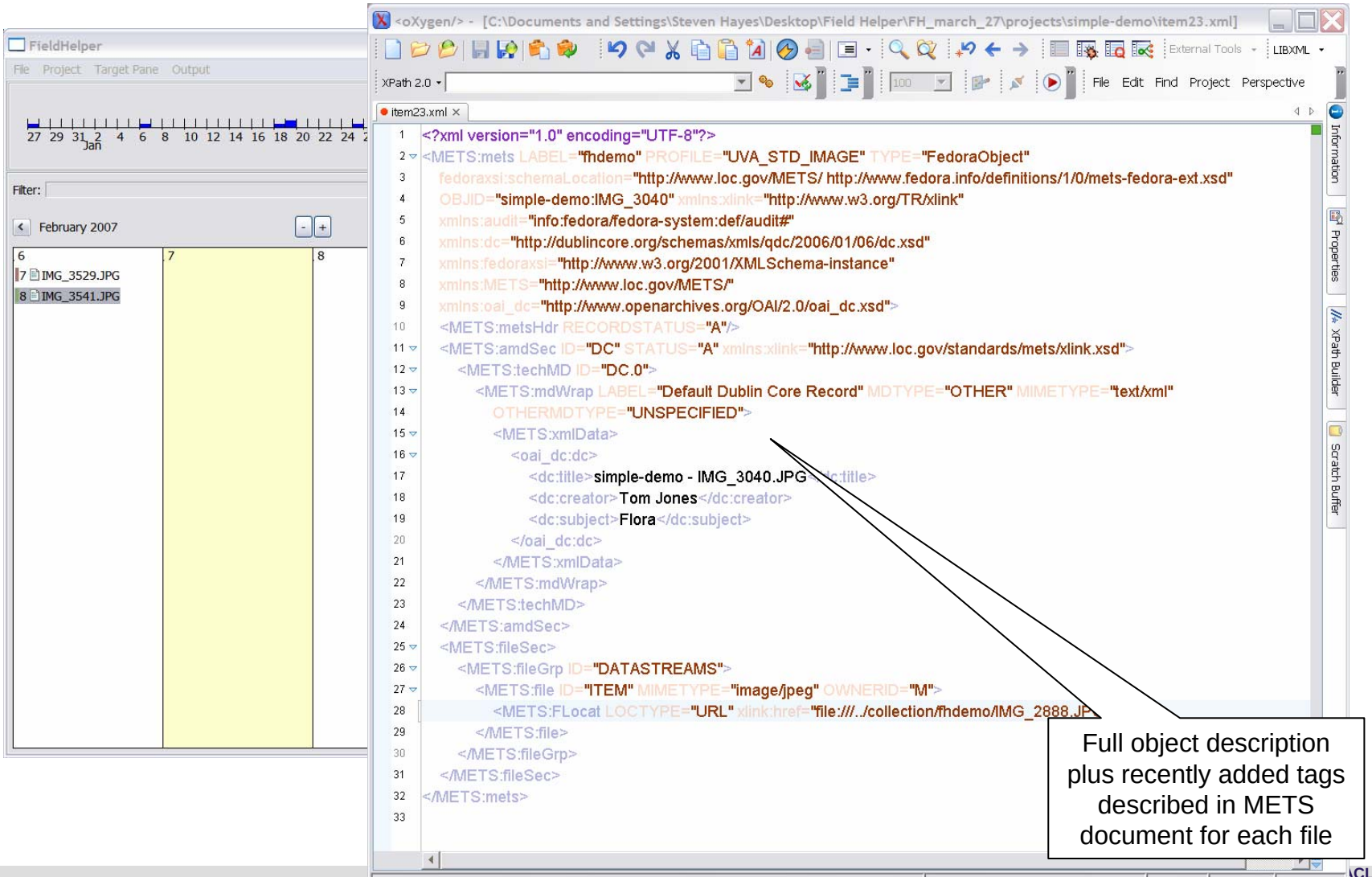

- Archaeological Computing Laboratory team
  - Ian Johnson, Director & *Time*Map concept
  - Steven Hayes, FieldHelper
  - Programers
    - Artem Ozmakov
    - Damian Evans
    - Tom Murtagh
    - Kim Jackson
    - Clinton Freeman

www.timemap.net