

Imaging river dune and bar deposits using a parametric echo sounder, examples from the Rio Parana and Rio Bermejo, Argentina

Dr. Greg Sambrook Smith

School of Geography, Earth & Environmental Sciences
University of Birmingham, United Kingdom

Jim Best and Jessica Zinger, University of Illinois at Urbana-Champaign, USA
Oscar Orfeo, Centro de Ecologia Aplicada del Litoral, Argentina
Mark Vardy, University of Southampton, UK

Contact

Address University of Birmingham
 School of Geography, Earth & Environmental Sciences
 B15 2TT Birmingham
 United Kingdom

E-mail g.smith.4@bham.ac.uk

Imaging river dune and bar deposits using a parametric echo sounder, examples from the Rio Parana and Rio Bermejo, Argentina

Greg Sambrook Smith, University of Birmingham, UK

Jim Best and Jessica Zinger, University of Illinois at Urbana-Champaign, USA

Oscar Orfeo, Centro de Ecología Aplicada del Litoral, Argentina

Mark Vardy, University of Southampton, UK

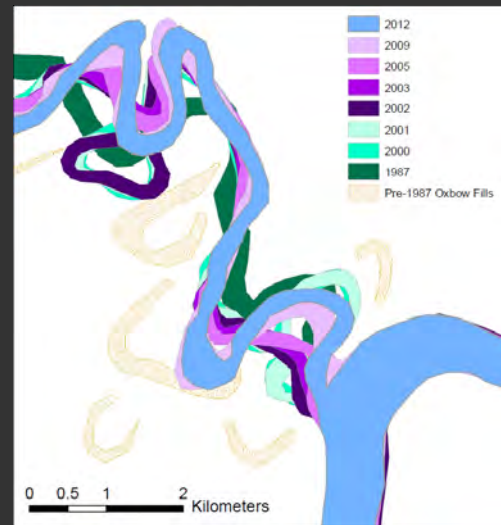
UNIVERSITY OF
BIRMINGHAM

Context

- Sedimentology of fine-grained rivers is less well constrained than gravel and sand
- Deposits *within* channel have not been studied as much as those of exposed bars
- Technological issues, e.g. radar does not work

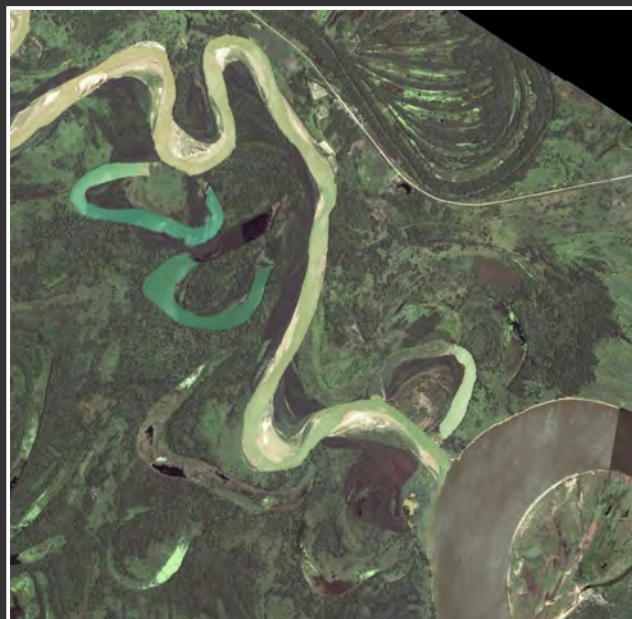
UNIVERSITY OF
BIRMINGHAM

Rio Bermejo



UNIVERSITY OF
BIRMINGHAM

Point bars



UNIVERSITY OF
BIRMINGHAM

Point bars

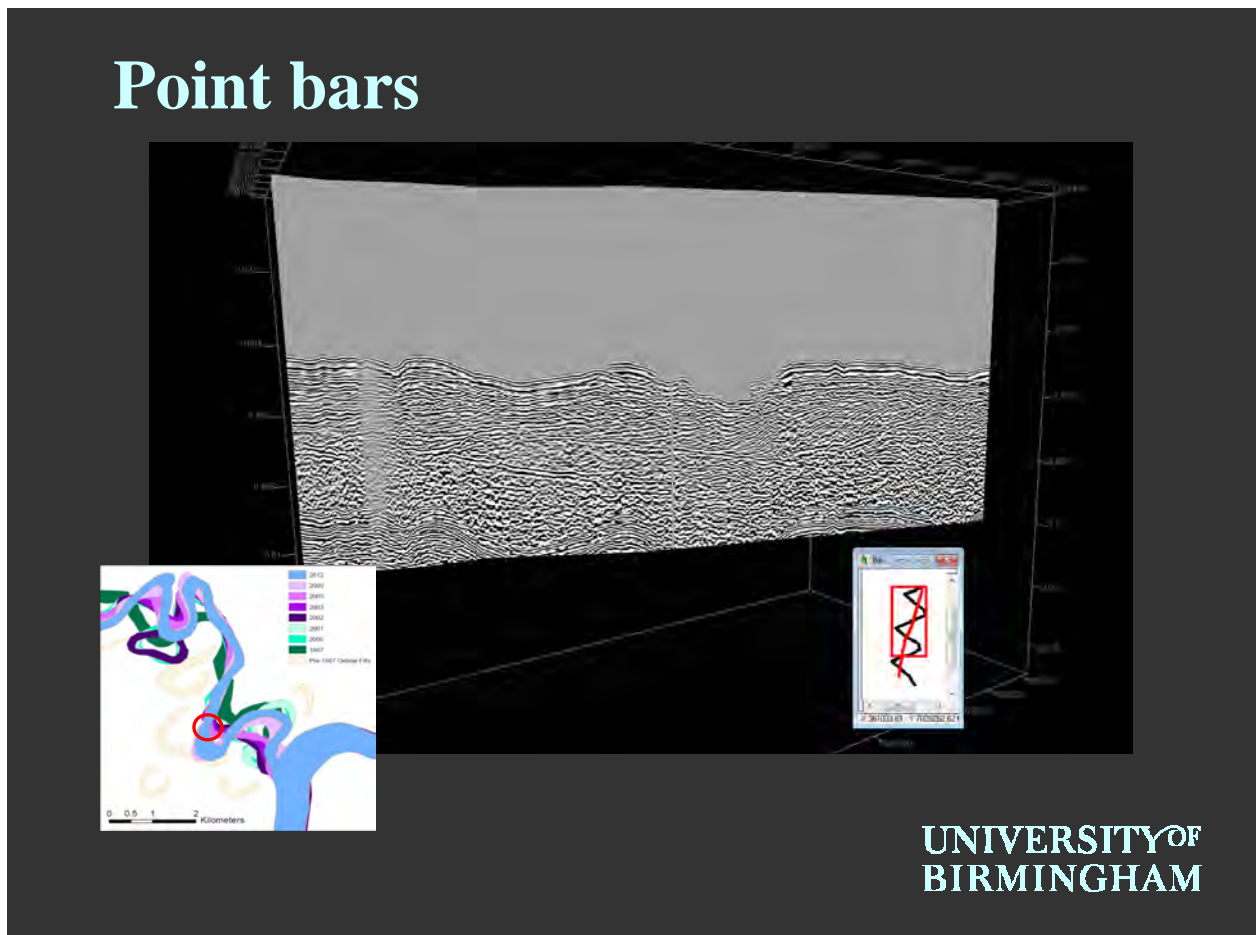
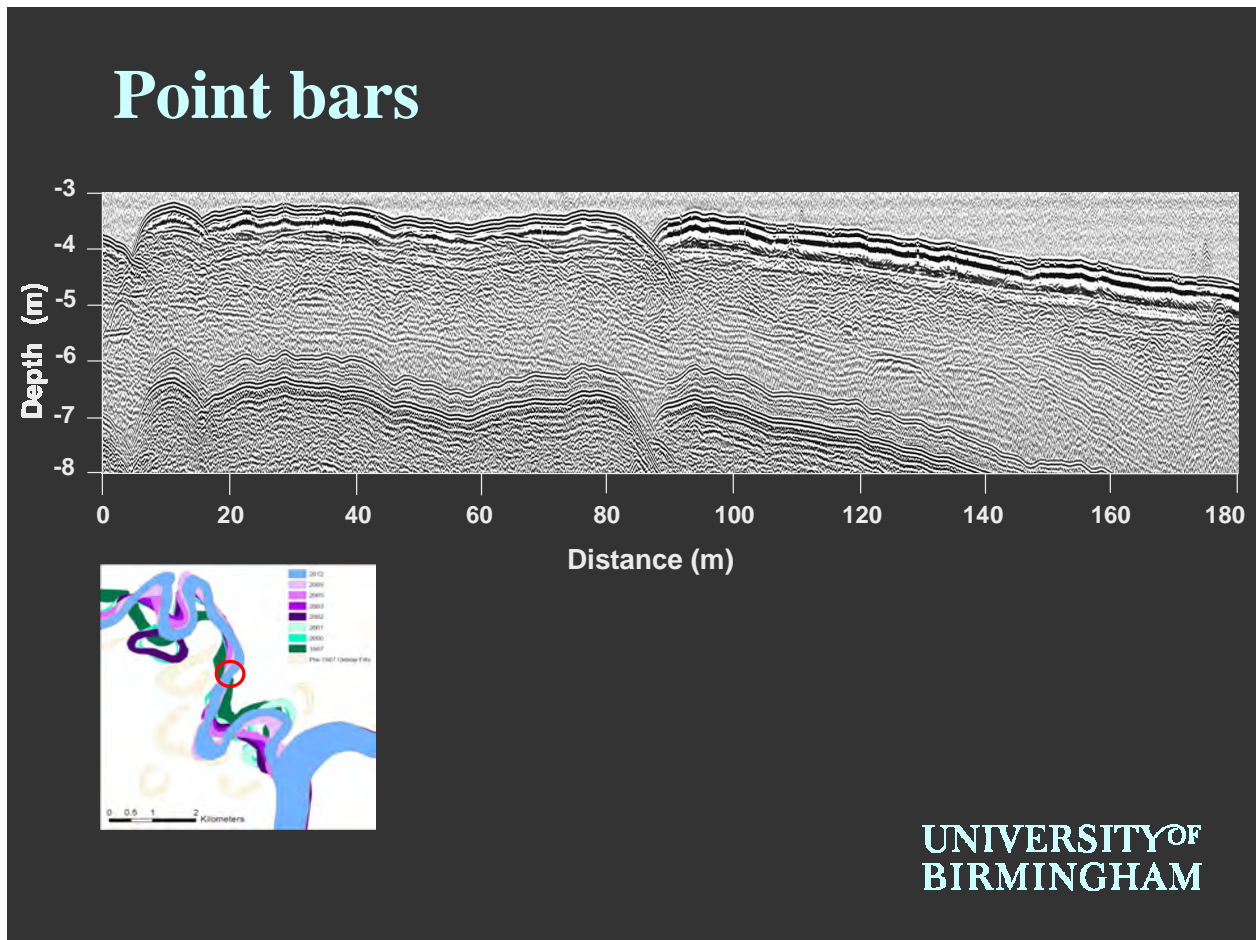


UNIVERSITY OF
BIRMINGHAM

Rio Bermejo



UNIVERSITY OF
BIRMINGHAM



Dunes

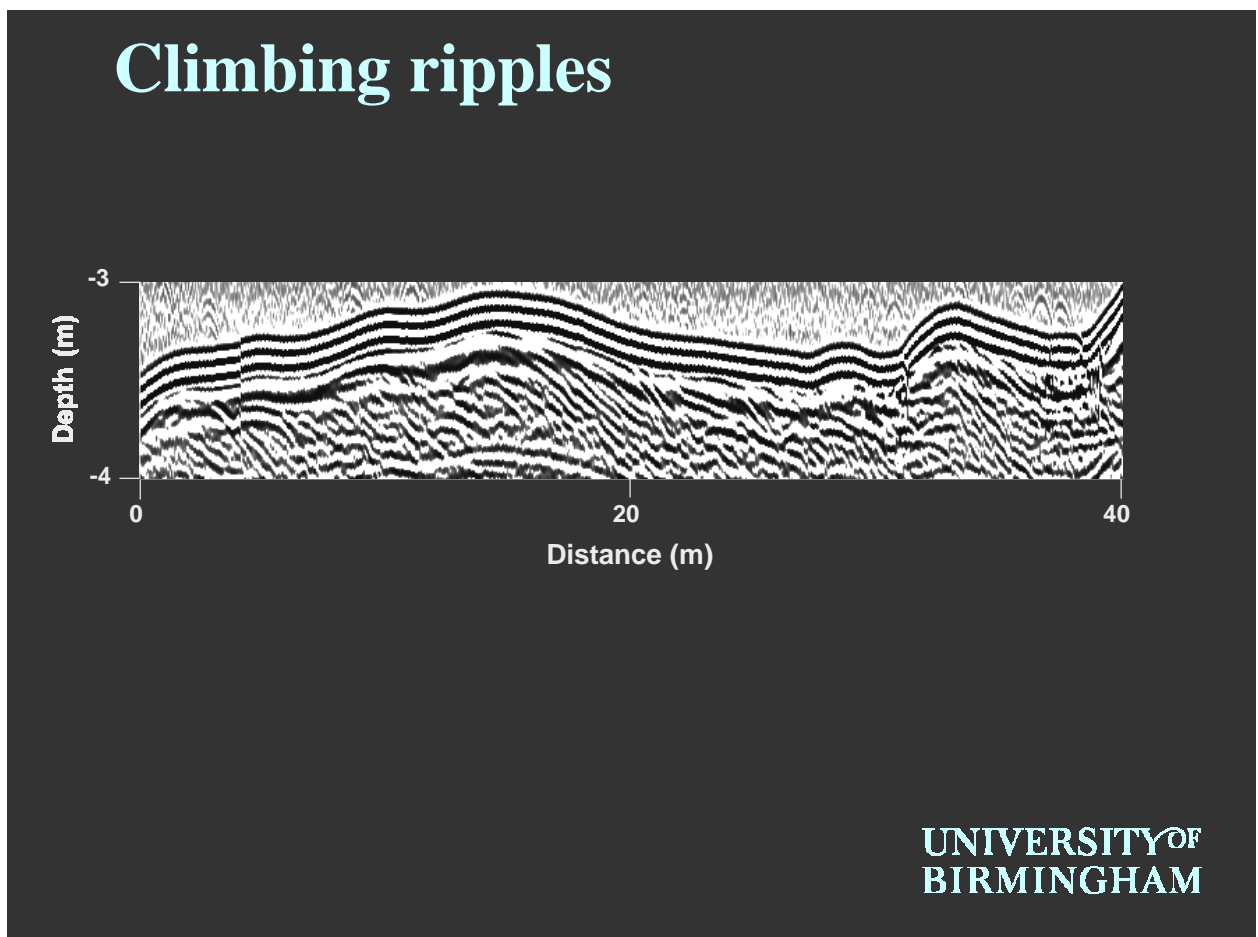
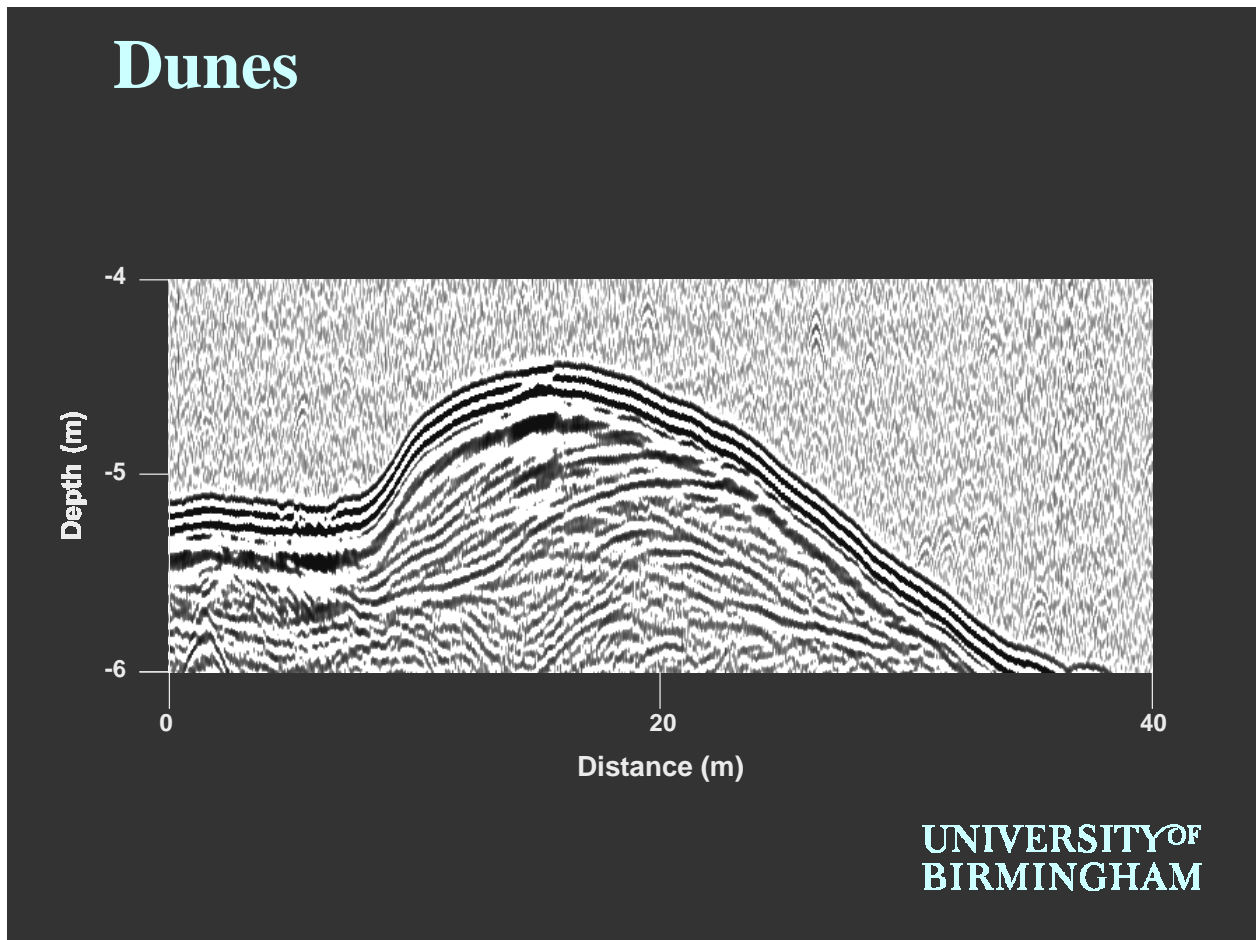


UNIVERSITY OF
BIRMINGHAM

Dunes



UNIVERSITY OF
BIRMINGHAM



Climbing ripples



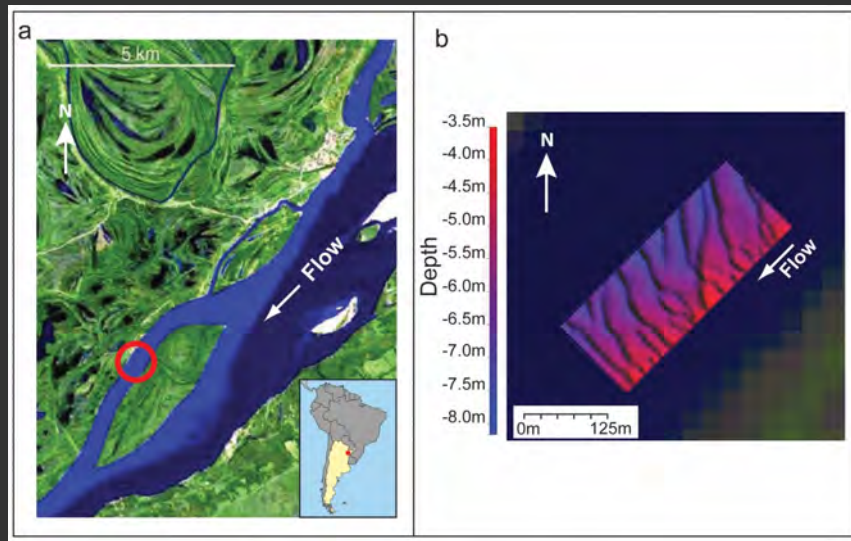
UNIVERSITY OF BIRMINGHAM

Rio Parana



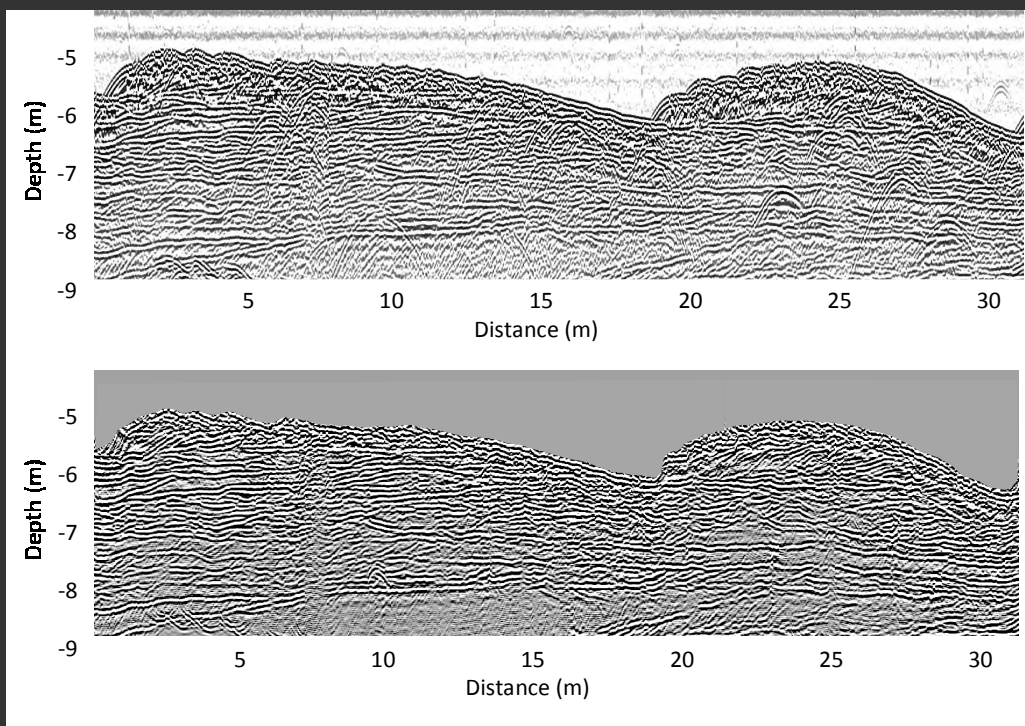
UNIVERSITY OF BIRMINGHAM

Dunes



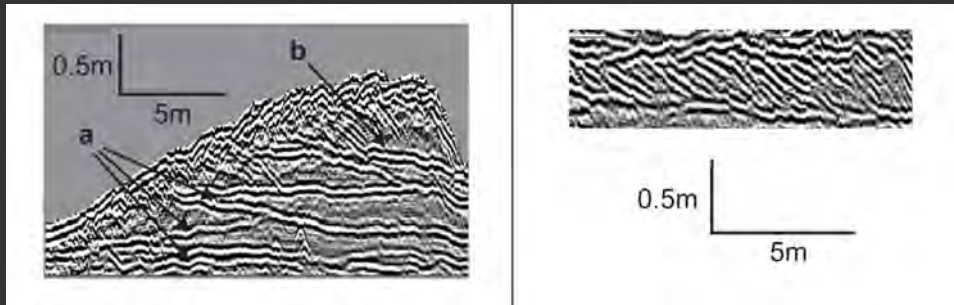
UNIVERSITY OF BIRMINGHAM

Dunes



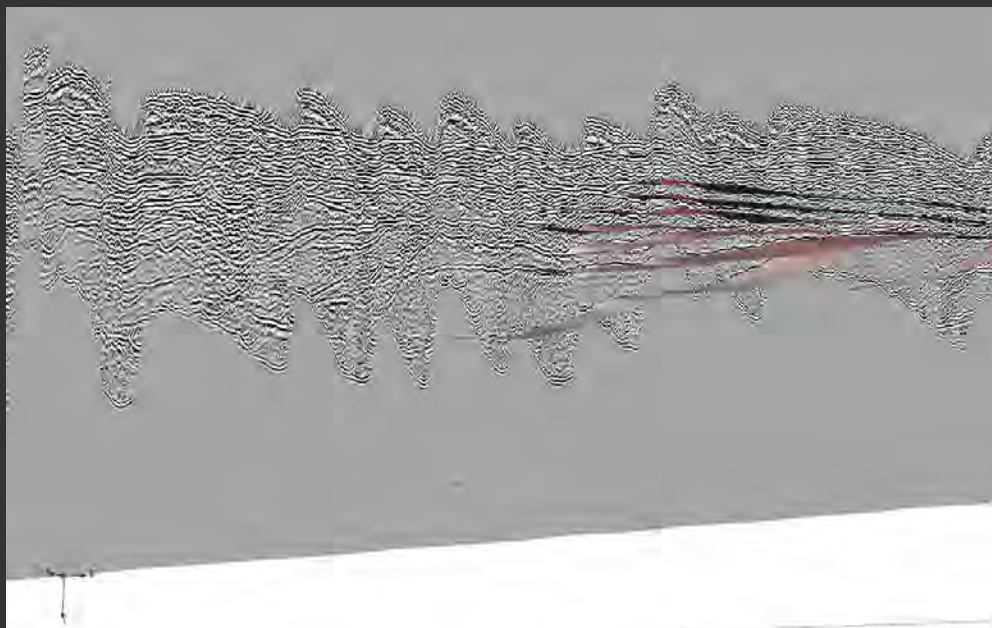
UNIVERSITY OF BIRMINGHAM

Dunes



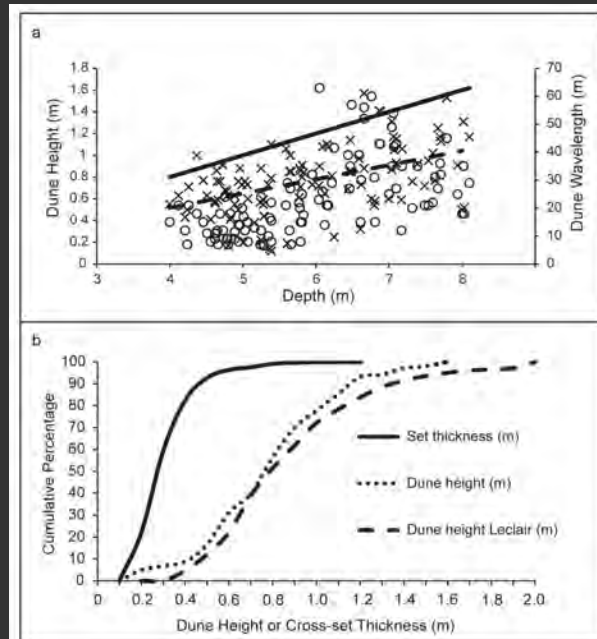
UNIVERSITY OF
BIRMINGHAM

Dunes



UNIVERSITY OF
BIRMINGHAM

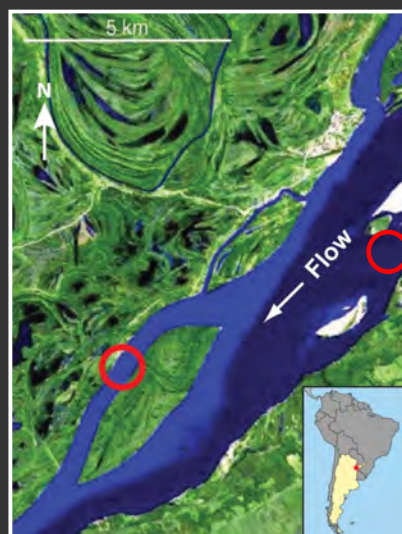
Dunes



Sambrook Smith et al. (2013)
Geophysical Research Letters

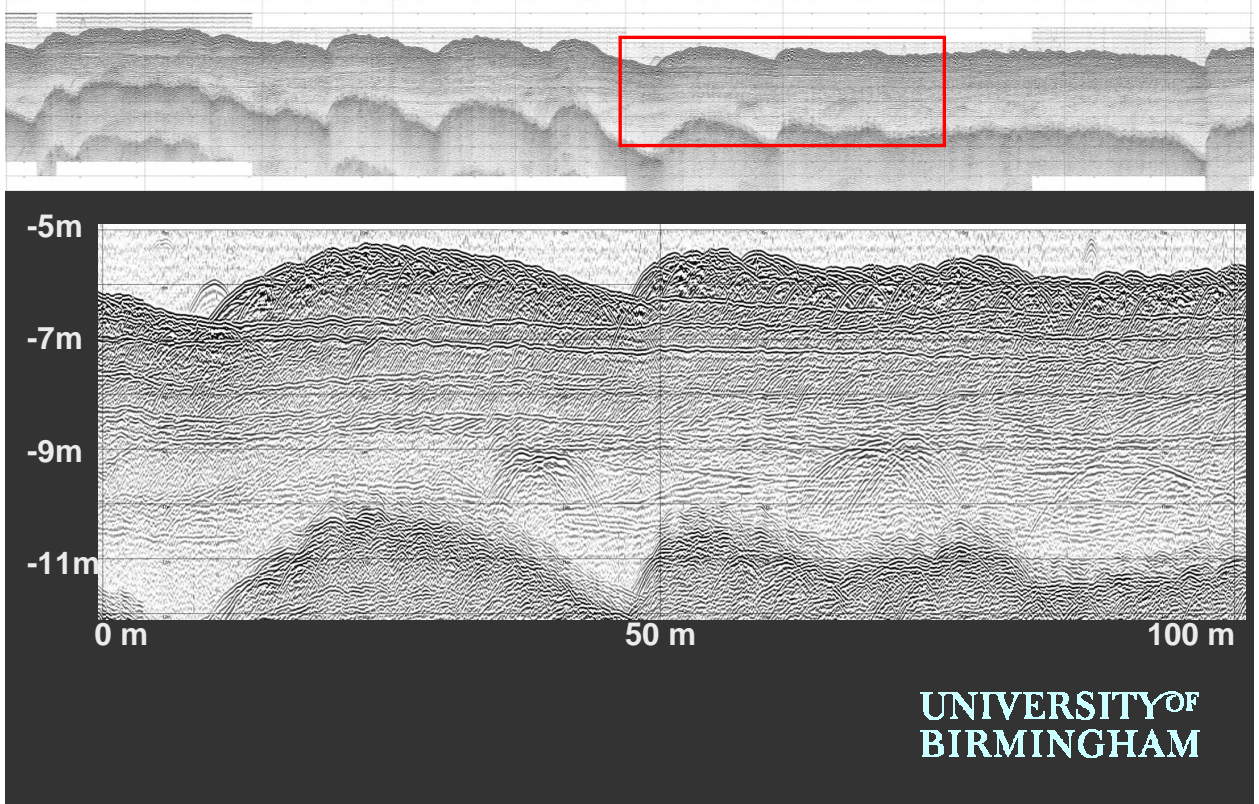
UNIVERSITY OF
BIRMINGHAM

Braid bars

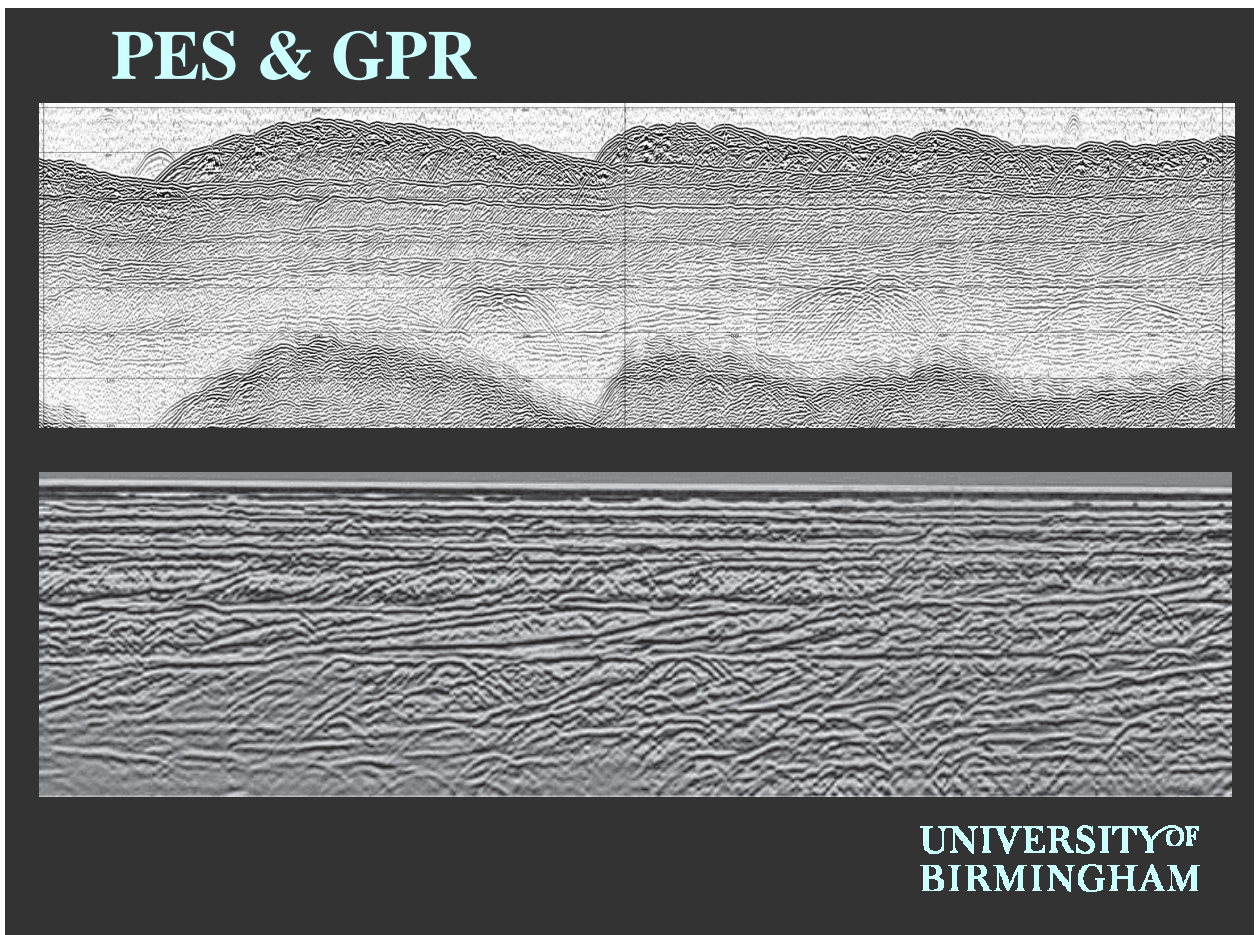


UNIVERSITY OF
BIRMINGHAM

Braid bars



PES & GPR



Conclusions

- PES can provide high resolution data of river deposits
- Enable new understanding of fine-grained rivers in particular
- Allow theory to be tested in a *field* context
- Integrated studies using PES and GPR will allow bars and channels to be imaged contemporaneously

UNIVERSITY OF
BIRMINGHAM