




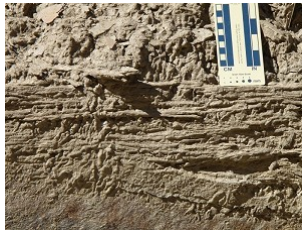
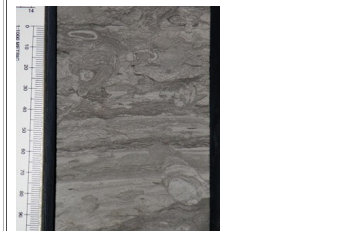
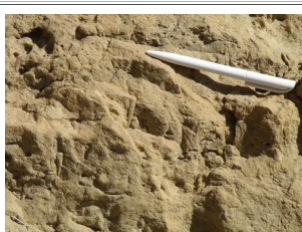
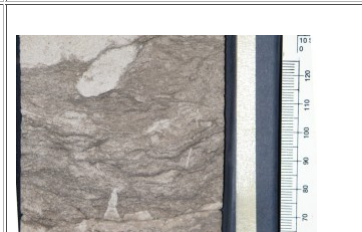
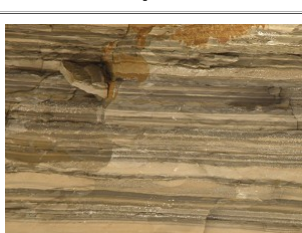

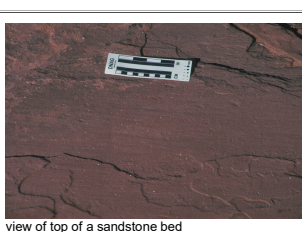



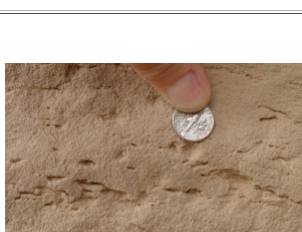
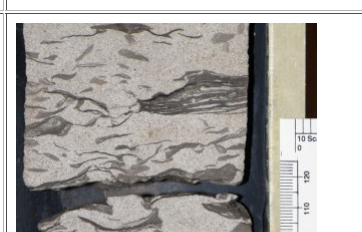

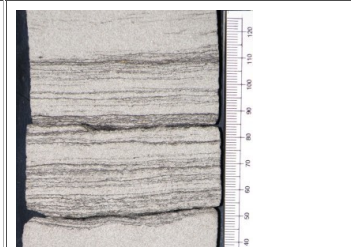

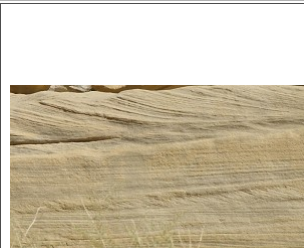


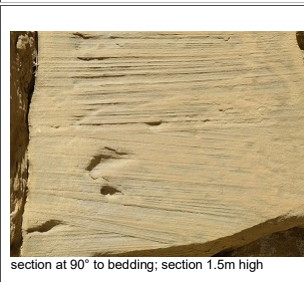
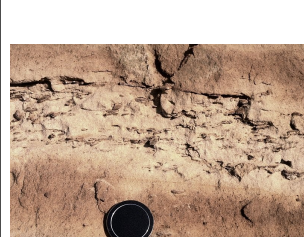





Recognition of sedimentary structures and features in outcrops and in cores of terrigenous clastic rocks

- **Tasks:** identify each of the sedimentary structures and features shown below - make notes and diagrams to assist you when you apply this knowledge in describing and interpreting outcrop and core.
- Answer the questions attached to individual photographs.
- The photos are not in any particular order
- In most of the photographs, sandstone is light in colour and mudstone is dark.
- Scales are in cm and mm, unless otherwise stated,
- Use appropriate books and web sites to help you identify these features, including:
 - Reference section of the Field Guide for this trip
 - Tucker (2003) *Sedimentary Rocks in the Field*
 - Stowe (2005) *Sedimentary Rocks in the Field: A Colour Guide*
 - Collinson *et al.* (2006) *Sedimentary Structures*
 - [A Photographic Atlas of Sedimentary Structures](#)
 - [Bedforms and Sedimentary Structures](#)
- To enlarge an image, click on it: this is essential to see the detail.
- Print out the pdf version of this page to draw and write on.

outcrop photographs	core photographs	comments, questions and your notes
 <p>loose block: base of sandstone bed; lens cap 50mm diam</p>		<p>These structures represent a sand infill on top of an eroded mud bed. Do they give us a current direction? Mark this on the printout. When recording sedimentary structures, always include a description of size.</p>
 <p>loose block: base of sandstone bed</p>		<p>These structures represent a sand infill on top of a mud bed. There may be more than one structure present. Think about processes.</p>
 <p>loose block: top of sandstone bed</p>		<p>Most of the surface is of very fine sandstone to siltstone. The darker linear structures are of fine to medium sandstone. What processes and conditions do these structures represent?</p>
 <p>section at 90° to bedding; coin 16 mm diam</p>		<p>A common structure in gravels and conglomerates. Can we infer current direction from this? If so, mark it on the photo.</p>
 <p>Loose block: top of sandstone bed</p>		<p>Is this a wave- or current-generated structure? What can you say about sediment transport direction(s). What else can you measure? Annotate the printout.</p>

 <p>section at 90° to bedding</p>		<p>After the deposition of these beds, what processes have occurred, and what are the resulting structures?</p>
 <p>section at 90° to bedding</p>		<p>After the deposition of these beds, what processes have occurred, and what are the resulting structures?</p>
 <p>section at 90° to bedding; section 20cm high</p>		<p>Regular alternation of laminations of sandstone (light) and mudstone (dark). What does this tell us about changing conditions during deposition? In what depositional settings might this occur? Name the structures. Flow regimes?</p>
 <p>view of top of a sandstone bed</p>		<p>Medium to coarse micaceous sandstone, thinly laminated. Flow regime? Current direction?</p>
 <p>section at 90° to bedding; section 50cm high</p>		<p>Look at the enlarged image. Note the geometry of the sandstone and mudstone components - by this, we mean describe properties like shape and lateral continuity. Identify the structures, and comment on the changing processes and conditions which formed them.</p>
 <p>Section at 90° to bedding; section 80cm high</p>		<p>Study the enlarged images. Note the geometry of the sandstone and mudstone components. Identify the structures, and comment on the changing processes and conditions which formed them. What are the elongate dark structures in the lower part of the core?</p>
 <p>section at 90° to bedding; coin 18mm diam</p>		<p>The weathered-out hollows in the outcrop photo represent the dark features seen in the core. What are they, and what happened to them after deposition?</p>

 <p>section at 90° to bedding; coin 19mm diam.</p>		<p>In these photos, the dark laminae are not mudstone; they consist of fragmented coaly material. Processes? Flow regime?</p>
 <p>Scale: red & white bars are 5cm long</p>		<p>These features are the internal structure of a particular bedform - which? What was the minimum height of these bedforms? Flow regime? Current direction?</p>
 <p>section at 90° to bedding; section 1m high</p>		<p>The inclined features are the internal structure of a particular bedform - which? Flow regime? Current direction? When recording sedimentary structures, always include a description of size: e.g. thickness of individual beds; thickness of sets of beds.</p>
 <p>plan view, parallel to bedding; makes a nice table! Scale: 60cm wide</p>	 <p>Scale in cm</p>	<p>When naming this structure, bear in mind the scale. Flow regime? Current direction?</p>
 <p>section at 90° to bedding; coin 25mm diam</p>		<p>The way these structures are arranged tells us something about sedimentation rates - what? Flow regime? Current direction?</p>
 <p>section at 90° to bedding; section 1.5m high</p>		<p>A key feature here is the relative dips of the bedding, and the nature of the contacts between sets of beds. Describe these. Give the features a name. Under what conditions might they have formed?</p>
 <p>section at 90° to bedding; lens cap 50mm diam</p>		<p>In these photos, we are interested in the discontinuous darker objects: they are made of a material with finer grain size than the sand surrounding them. In the core photo, concentrate on the grey objects - we encountered the black wispy objects in an earlier question. What sequence of processes is represented here?</p>

 <p>section at 90° to bedding; section 40 cm high</p>		<p>These are post-depositional structures. Describe them, and explain what happened to the bedded sediment after deposition.</p>
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