Micromorphology Report Academic Level : Bachelor Paper details Aim: To examine one thin section (high resolution scan) of unconsolidated sediment from a cold environment, and determine sedimentary, deformational and post-depositional processes in order to inform (palaeo)environmental reconstruction by: a) Describing textural features (e.g. grain size, grain shape, grain orientation, matrix texture, matrix density etc.) b) Describing structural features (e.g. voids, rotation/compression/slump, planar, abrasion, sediment mixing, porewater, plasmic fabric, post-depositional etc.) c) Relating the above textural/structural features to processes (e.g. sedimentation, ductile/brittle deformation, porewater expulsion etc.) and then relating these specific processes to environments of deposition (e.g. glaciofluvial, glaciolacustrine, glaciomarine, subglacial, iceberg scour, periglacial etc.) d) Considering advantages and limitations of micromorphology as a technique • Unfortunately we do not have access to original sedimentary thin sections for analysis under the microscope. Instead you will be working from a blown-up, laminated, high-resolution scan of a thin section, which will be made available to you on StudentCentral (please do not take away the laminated, master copies of these thin section scans). You are expected to take, and annotate, images from this scan and include these annotated images in your report (use either a drawing programme to annotate images [e.g. paint, adobe illustrator, powerpoint], or print the scan, neatly draw on the printed version of the scan by hand, and then re-scan the annotated, printed version into your report). • Use the Micromorphology Description Sheet to record your observations in detail (available on StudentCentral). You can of course supplement this sheet with your own version of notes should you wish to. Include all, full descriptions i.e. the Micromorphology Description Sheet (electronically) in the Appendices of your report (remembering to also include a summarised description in the main body of the report too - words in appendices won’t count but words in the main body of the report do count). • While some thin sections you are examining are from glacial environments, many are from other cold environments. Please only assume that what you are looking at is from a cold environment. • Note: your scans appear in Plane Polarised Light under a microscope – therefore you will not be able to see/describe any birefringent features e.g. plasmic fabrics (which require Cross Polarised Light under a microscope). However, you are expected to briefly comment on plasmic fabrics in your written report (e.g. what it is, different types, how it forms etc.). • It is also useful to annotate the thin section scan while you are describing it in the lab session so that you know where on the thin section you have identified a specific feature. This is useful when you come back to thin sections in the second lab session or outside of lab sessions (print the scan in black and white so you can draw on them ). Structure of the report: Recommended structure of your report as follows (note: whichever way you decide to structure your report, please make sure that the description and interpretation sections are clearly separate from each other – if you combine these two sections together, you will lose marks): • Introduction • Thin section description • Interpretation (processes and environment) • Evaluation of micromorphology as a technique (advantages/limitations) • Conclusions • References • Figures/Tables (please make sure these are formatted and labelled, with captions, accordingly) • Appendices (you can include full thin section descriptions/worksheets here – quality of appendices will count towards your final grade) • Please keep to the 1000 words word count (note that references, appendices, figure/table captions and words in tables do not count towards word count)