## Descriptions
| Sample | Site | StratUnit | Silicification | PVCircular | PVOvate | PVLobate | PVLinear | PVCerebroid | SLayered | SDomical | SOncoid | SBranched | SColumnar | MacroHeightWidth | GrowthVariability | Attitude | MacroScale | BSFurcate | BSDichotomous | BSLateral | Convergence | BranchHeightWidth | BranchMode | Divergence | BranchScale | MLColor | MLWaviness | MLThrombolitic | MLThickness | MLGrains | MLBranching | MLRepeating | MLCyclic | LPConcave | LPFlat | LPRectangular | LPPointed | LPConvex | LPNodular | LPOncoid | Alternation | VoidIntercalated | SynRelief | Waviness | Inheritance | Continuity | Walls | Analyses | Notes |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| GRB24-BTR-13 | BTR | GRFTR | 0 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.010 | NaN | NaN | NaN | NaN | NaN | NaN | NaN | NaN | 1 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1.0 | 0.0 | 0.0 | 2.0 | 2.0 | 1.0 | 0.0 | NaN | NaN |
| GRB24-BTR-4 | BTR | GRFTR | 0 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.000 | 1.0 | 0.0 | 1.0 | 1.0 | 2.0 | 1.0 | 0.5 | 0.001 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1.0 | 0.0 | 0.5 | 0.0 | 1.0 | 0.5 | 2.0 | CT | NaN |
| GRB24-BTR-5 | BTR | GRFTR | 0 | 1.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 1.0 | 0.0 | 1.0 | 0.0 | 0.5 | 0.0 | 0.0 | 1.000 | 1.0 | 1.0 | 0.0 | 1.0 | 2.0 | 0.5 | 0.5 | 0.001 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1.0 | 0.0 | 1.0 | 0.0 | 1.5 | 1.0 | 2.0 | TS,WDS | NaN |
| GRB24-BTR-9 | BTR | GRFTR | 0 | 1.0 | 0.0 | 1.0 | 0.0 | 1.0 | 1.0 | 1.0 | 0.0 | 1.0 | 0.0 | 0.5 | 0.0 | 0.0 | 1.000 | 1.0 | 1.0 | 1.0 | 1.0 | 2.0 | 1.0 | 0.5 | 0.001 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1.0 | 0.0 | 1.0 | 0.0 | 1.0 | 1.0 | 1.0 | TS,CT,Clumped,XRD | NaN |
| GRB24-BTR-3 | BTR | GRFTR | 0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 1.0 | 0.0 | 1.0 | 0.0 | 0.5 | 1.0 | 0.0 | 1.000 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 0.5 | 0.001 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1.0 | 0.0 | 0.5 | 2.0 | 1.0 | 1.0 | 2.0 | NaN | NaN |
| GRB24-BTR-6 | BTR | GRFTR | 0 | 0.0 | 0.0 | 1.0 | 0.0 | 1.0 | 1.0 | 1.0 | 0.0 | 1.0 | 0.0 | 0.5 | 1.0 | 1.0 | 1.000 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 0.5 | 0.001 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1.0 | 0.0 | 0.5 | 1.0 | 1.0 | 1.0 | 2.0 | NaN | NaN |
| GRB24-BTS-10 | BTS | GRFTS | 0 | NaN | NaN | NaN | NaN | NaN | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.010 | NaN | NaN | NaN | NaN | NaN | NaN | NaN | NaN | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 1.0 | 0.0 | Clumped | lacking many stromatolitic features. Mostly massive/thrombolitic. Porous, extensive cemented grains and organic matter |
| GRB24-BTS-11 | BTS | GRFTS | 0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 | 1.0 | 1.0 | 2.0 | 1.0 | 1.0 | 0.010 | 1.0 | 0.0 | 0.0 | 0.5 | 2.0 | 2.0 | 1.0 | 0.010 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1.0 | 1.0 | 1.0 | 2.0 | 1.0 | 0.5 | 2.0 | CT,TS | NaN |
| GRB24-BTS-4 | BTS | GRFTS | 0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 | 1.0 | 1.0 | 1.0 | 1.0 | 0.0 | 0.010 | 1.0 | 1.0 | 1.0 | 1.0 | 2.0 | 2.0 | 0.5 | 0.010 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1.0 | 1.0 | 1.0 | 2.0 | 1.0 | 0.5 | 2.0 | TS,WDS | NaN |
| GRB24-BTS-6 | BTS | GRFTS | 0 | 1.0 | 1.0 | 1.0 | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 | 1.0 | 1.0 | 2.0 | 1.0 | 1.0 | 0.010 | 1.0 | 0.0 | 1.0 | 0.5 | 2.0 | 1.5 | 1.0 | 0.010 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | NaN | NaN | 1.0 | 0.0 | 1.0 | 0.5 | 2.0 | CT | NaN |
| GRB24-BTS-8 | BTS | GRFTS | 0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 0.010 | 1.0 | 0.0 | 0.0 | 1.0 | 2.0 | 2.0 | 1.0 | 0.010 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0.0 | 1.0 | 1.0 | 0.0 | 0.5 | 0.5 | 1.0 | CT | NaN |
| GRB23-HS-19 | HS | GRFTR | 0 | 1.0 | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.010 | NaN | NaN | NaN | NaN | NaN | NaN | NaN | NaN | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1.5 | 1.0 | 1.0 | 3.0 | 1.0 | 1.0 | 1.0 | CT,TS,WDS,XRD | NaN |
| GRB23-HS-23 | HS | GRFTR | 0 | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 | 1.0 | 1.0 | 0.0 | 0.010 | NaN | NaN | NaN | NaN | NaN | NaN | NaN | NaN | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1.5 | 1.0 | 1.0 | 3.0 | 1.0 | 0.5 | 2.0 | CT | NaN |
| GRB23-HS-35 | HS | GRFTR | 0 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 1.0 | 0.010 | NaN | NaN | NaN | NaN | NaN | NaN | NaN | NaN | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1.5 | 1.0 | 1.0 | 3.0 | 1.0 | 0.5 | 2.0 | CT,Clumped | NaN |
| GRB23-HS-45 | HS | GRFTR | 0 | 1.0 | 1.0 | 0.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 0.0 | 0.0 | 0.5 | 0.0 | 0.0 | 0.001 | NaN | NaN | NaN | NaN | NaN | NaN | NaN | NaN | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0.0 | 1.0 | 2.0 | 0.0 | 2.0 | 1.0 | 1.0 | CT | Oncoids or very large ooids on top of flat laminated. Small fragment |
| GRB23-HS-8 | HS | GRFTR | 0 | NaN | NaN | NaN | NaN | NaN | NaN | NaN | NaN | NaN | NaN | NaN | NaN | NaN | 0.010 | NaN | NaN | NaN | NaN | NaN | NaN | NaN | NaN | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 2.0 | 1.0 | 0.5 | 3.0 | 1.0 | 2.0 | NaN | CT | fragment, cannot get macroscopic information |
| GRB24-HS3-4 | HS | GRFTR | 0 | 1.0 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 0.001 | NaN | NaN | NaN | NaN | NaN | NaN | NaN | NaN | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1.0 | 0.0 | 2.0 | 0.0 | 2.0 | 1.0 | 1.0 | CT | Oncoids or possibly just very large ooids |
| GRB24-HS3-2 | HS | GRFTR | 0 | 0.0 | 1.0 | 1.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 0.010 | NaN | NaN | NaN | NaN | NaN | NaN | NaN | NaN | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1.5 | 1.0 | 2.0 | 3.0 | 1.0 | 1.0 | 1.0 | NaN | nucleus is small tipped over stromatolite. |
| GRB24-HS3-1 | HS | GRFTR | 0 | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 1.0 | 0.0 | 1.0 | 1.0 | 1.0 | 0.010 | 1.0 | 0.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.5 | 0.010 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 1.5 | 1.0 | 1.5 | 3.0 | 0.5 | 1.0 | 2.0 | NaN | core is branched with lots of ooud and sediment fill as well as crystalline calcite, transitions at top to standard yellow alternating with green/gray of HS |
| GRB24-HS4-3a | HS4 | GRFTR | 0 | NaN | NaN | NaN | NaN | NaN | 1.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | NaN | NaN | 0.010 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 1.0 | 0.5 | 0.001 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 2.0 | 1.0 | 0.0 | 3.0 | 1.0 | 1.0 | 0.0 | NaN | strom clast at core of sample |
| GRB24-HS4-3b | HS4 | GRFTR | 0 | 0.0 | 1.0 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 1.0 | 2.0 | 1.0 | 1.0 | 0.010 | 1.0 | 1.0 | 0.0 | 0.5 | 2.0 | 0.5 | 0.0 | 0.010 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 2.0 | 1.0 | 1.0 | 2.0 | 1.0 | 1.0 | 1.0 | NaN | branched layer to side of initial nucleating clast |
| GRB24-HS4-3c | HS4 | GRFTR | 0 | 0.0 | 1.0 | 0.0 | 0.0 | 1.0 | 1.0 | 1.0 | 1.0 | 0.0 | 0.0 | 0.5 | 1.0 | 1.0 | 0.010 | NaN | NaN | NaN | NaN | NaN | NaN | NaN | NaN | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 2.0 | 1.0 | 1.0 | 3.0 | 1.0 | 1.0 | 1.0 | NaN | stromatolitic/oncoid layering on opposite side of clast from 3b |
| GRB24-HS4-3d | HS4 | GRFTR | 0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 0.0 | 1.0 | 1.0 | 2.0 | 0.0 | 0.0 | 0.010 | 1.0 | 1.0 | 0.0 | 1.0 | 2.0 | 0.5 | 0.0 | 0.010 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 2.0 | 1.0 | 0.5 | 3.0 | 0.5 | 1.0 | 2.0 | NaN | outer branched layer |
| GRB24-HS4-1 | HS4 | GRFTR | 0 | NaN | NaN | NaN | NaN | 1.0 | 1.0 | NaN | NaN | 1.0 | 1.0 | NaN | NaN | NaN | 0.010 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 0.0 | 0.001 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 2.0 | 1.0 | 0.5 | 3.0 | 0.5 | 1.0 | 2.0 | NaN | fragment, can't get good macro |
| GRB24-HS4-2 | HS4 | GRFTR | 0 | NaN | NaN | NaN | NaN | 1.0 | 1.0 | NaN | NaN | 1.0 | 1.0 | NaN | NaN | NaN | 0.010 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 0.0 | 0.010 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 2.0 | 1.0 | 0.5 | 3.0 | 0.5 | 1.0 | 2.0 | NaN | fragment, can't get good macro |
| GRB23-HS-1 | HSF | GRF | 2 | 1.0 | 0.0 | 0.0 | 0.0 | 1.0 | 1.0 | 0.0 | 0.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 0.010 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 1.0 | 1.0 | 0.010 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1.5 | 1.0 | 1.0 | 2.0 | 1.0 | 0.0 | 2.0 | CT | NaN |
| GRB23-HS-10 | HSF | GRF | 2 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 | 1.0 | 1.0 | 2.0 | 1.0 | 1.0 | 0.001 | 1.0 | 0.0 | 1.0 | 0.5 | 2.0 | 1.0 | 0.5 | 0.001 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 2.0 | 1.0 | 1.0 | 0.0 | 0.5 | 0.0 | 2.0 | CT | NaN |
| GRB23-HS-12 | HSF | GRF | 2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 0.010 | 1.0 | 1.0 | 0.0 | 1.0 | 2.0 | 0.5 | 0.0 | 0.010 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 2.0 | 0.0 | 1.0 | 3.0 | 0.0 | 0.0 | 2.0 | TS,WDS,XRD | NaN |
| GRB23-HS-44 | HSF | GRF | 2 | 1.0 | 1.0 | 1.0 | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 | 1.0 | 1.0 | 2.0 | 1.0 | 1.0 | 0.001 | 1.0 | 0.0 | 1.0 | 0.5 | 2.0 | 1.0 | 0.5 | 0.001 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1.5 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 1.0 | CT | NaN |
| GRB24-HS-12A | HSF | GRF | 0 | 1.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 0.010 | NaN | NaN | NaN | NaN | NaN | NaN | NaN | NaN | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1.0 | 1.0 | 2.0 | 1.5 | 1.5 | 1.0 | 1.0 | TS | NaN |
| GRB24-HS1-5 | HSF | GRFTR | 0 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 0.010 | 0.0 | 1.0 | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 | 0.010 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1.5 | 0.0 | 1.0 | 3.0 | 1.5 | 1.0 | 1.0 | NaN | NaN |
| GRB24-HS5-13 | HSF | GRF | 0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 1.0 | 0.0 | 0.0 | 1.0 | 1.0 | 0.0 | 0.0 | 0.0 | 1.000 | NaN | NaN | NaN | 1.0 | 1.0 | NaN | 0.0 | 0.010 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1.0 | 1.0 | 0.5 | 3.0 | 1.0 | 1.0 | 2.0 | TS,WDS | NaN |
| GRB24-HS5-8 | HSL | GRFL | 1 | NaN | NaN | NaN | NaN | NaN | 1.0 | 0.0 | 0.0 | 1.0 | 1.0 | 0.0 | 0.0 | 0.0 | 1.000 | NaN | NaN | NaN | NaN | NaN | NaN | NaN | NaN | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 2.0 | 1.0 | 0.0 | 3.0 | 1.0 | 1.0 | 0.0 | NaN | NaN |
| GRB24-HS5-2 | HSW | WCB | 1 | 1.0 | 0.0 | 1.0 | 0.0 | 1.0 | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 0.010 | NaN | NaN | NaN | NaN | NaN | NaN | NaN | NaN | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1.1 | 1.0 | 1.0 | 2.0 | 2.0 | 1.0 | 1.0 | CT,TS | Strom conglom with macrocrystalline quartz |
| GRB24-HS5-1a | HSW | WCB | 0 | NaN | NaN | NaN | NaN | 1.0 | NaN | NaN | NaN | 1.0 | NaN | NaN | NaN | NaN | NaN | 1.0 | 1.0 | 0.0 | 0.5 | 1.0 | 1.0 | 0.5 | 0.001 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 1.0 | 0.0 | 0.5 | 2.0 | 1.5 | 1.0 | 2.0 | NaN | conglomerate with stromatolite clasts |
| GRB24-HS5-1b | HSW | WCB | 0 | NaN | NaN | NaN | NaN | 1.0 | NaN | NaN | NaN | 1.0 | NaN | NaN | NaN | NaN | NaN | 1.0 | 1.0 | 0.0 | 0.5 | 1.0 | 1.0 | 0.5 | 0.001 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 1.0 | 0.0 | 0.5 | 2.0 | 1.5 | 1.0 | 2.0 | NaN | conglomerate with stromatolite clasts |
| GRB23-LB-1 | LB | GRFWP | 0 | 0.0 | 1.0 | 0.0 | 0.0 | 1.0 | 0.0 | 1.0 | 0.0 | 1.0 | 0.0 | 1.0 | 1.0 | 1.0 | 0.010 | 1.0 | 0.0 | 1.0 | 1.0 | 1.5 | 1.0 | 1.0 | 0.010 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1.0 | 1.0 | 0.5 | 0.5 | 1.5 | 1.0 | 2.0 | CT,TS,Clumped,WDS,XRD | NaN |
| GRB23-LB-3 | LB | GRFWP | 0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 1.0 | 0.0 | 0.0 | 1.0 | 1.0 | 0.0 | 0.0 | 0.0 | 1.000 | 1.0 | 0.0 | 1.0 | 0.5 | 2.0 | 1.0 | 1.0 | 0.010 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0.0 | 1.0 | 1.0 | 0.0 | 0.5 | 0.0 | 2.0 | CT,XRD | NaN |
| GRB23-LB-4 | LB | GRFWP | 0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 0.010 | NaN | NaN | NaN | NaN | NaN | NaN | NaN | NaN | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1.5 | 1.0 | 2.0 | 2.0 | 2.0 | 2.0 | 1.0 | CT,Corg | NaN |
| GRB24-LBN1-5 | LB | GRFWP | 1 | 0.0 | 1.0 | 0.0 | 0.0 | 1.0 | 1.0 | 1.0 | 0.0 | 1.0 | 0.0 | 0.5 | 1.0 | 1.0 | 0.010 | 1.0 | 0.0 | 0.0 | 1.0 | 1.0 | 2.0 | 1.0 | 0.010 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 1.0 | 1.0 | 1.0 | 3.0 | 1.0 | 1.0 | 2.0 | TS | NaN |
| GRB24-LBN2-2 | LB | GRFWP | 1 | 1.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.000 | 1.0 | 0.0 | 1.0 | 1.0 | 2.0 | 1.0 | 0.5 | 0.010 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 2.0 | 0.0 | 1.0 | 0.0 | 1.0 | 1.0 | 1.0 | CT | NaN |
| GRB24-LBN2-3 | LB | GRFWP | 1 | 0.0 | 1.0 | 0.0 | 0.0 | 1.0 | 0.0 | 1.0 | 0.0 | 1.0 | 0.0 | 1.0 | 1.0 | 1.0 | 0.010 | 1.0 | 0.0 | 1.0 | 1.0 | 1.5 | 0.0 | 0.5 | 0.010 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 1.5 | 1.0 | 1.5 | 3.0 | 0.5 | 1.0 | 1.0 | TS | NaN |
| GRB24-LBN2-4 | LB | GRFWP | 1 | 1.0 | 0.0 | 1.0 | 1.0 | 1.0 | 0.0 | 0.0 | 0.0 | 1.0 | 1.0 | 2.0 | 0.0 | 0.0 | 0.010 | 1.0 | 0.0 | 1.0 | 1.0 | 1.0 | 1.0 | 0.5 | 0.010 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1.0 | 1.0 | 1.5 | 1.0 | 1.0 | 1.0 | 1.0 | TS,WDS | NaN |
| GRB24-LBN2-9 | LB | GRFWP | 1 | 1.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 1.0 | 0.0 | 1.0 | 0.0 | 1.0 | 1.0 | 1.0 | 0.010 | 1.0 | 0.0 | 0.0 | 1.0 | 1.0 | 0.0 | 0.0 | 0.010 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1.5 | 1.0 | 2.0 | 3.0 | 0.5 | 0.5 | 1.0 | CT | NaN |
| GRB24-LBN2-5 | LB | GRFWP | 1 | NaN | NaN | NaN | NaN | 1.0 | 0.0 | 0.0 | 0.0 | 1.0 | 1.0 | NaN | NaN | NaN | 1.000 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 0.5 | 0.010 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1.5 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 2.0 | NaN | NaN |
| GRB24-LB-3 | LB | GRFWP | 0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.010 | 1.0 | 0.0 | 0.0 | 1.0 | 1.0 | 1.0 | 1.0 | 0.001 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0.0 | 1.0 | 0.5 | 1.0 | 1.0 | 1.0 | 0.0 | NaN | NaN |
| GRB23-LB-5 | LB | GRFWP | 0 | 0.0 | 1.0 | 1.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 1.0 | 0.0 | 1.0 | 0.0 | 0.0 | 0.010 | 1.0 | 0.0 | 0.0 | 1.0 | 1.0 | 1.0 | 0.5 | 0.001 | 0 | 1 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 2.0 | Corg | NaN |
| GRB23-YR-10 | YR | GRFTR | 0 | 0.0 | 1.0 | 0.0 | 0.0 | 1.0 | 0.0 | 1.0 | 0.0 | 1.0 | 0.0 | 0.5 | 1.0 | 1.0 | 0.010 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.5 | 0.5 | 0.001 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1.5 | 1.0 | 0.5 | 1.0 | 1.0 | 0.5 | 2.0 | CT | NaN |
| GRB23-YR-11 | YR | GRFTR | 0 | 1.0 | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 1.0 | 1.0 | 1.5 | 1.0 | 0.0 | 0.010 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.5 | 0.5 | 0.001 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 2.0 | 1.0 | 2.0 | 0.5 | 1.5 | 1.0 | 2.0 | CT,TS,Clumped,WDS,XRD | NaN |
| GRB23-YR-12 | YR | GRFTR | 0 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 1.0 | 0.0 | 1.0 | 0.0 | 0.0 | 0.010 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.5 | 0.5 | 0.001 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 2.0 | 1.0 | 1.0 | 2.0 | 1.5 | 2.0 | 2.0 | CT | NaN |
| GRB23-YR-13 | YR | GRFTR | 0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 0.0 | 1.0 | 0.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 0.010 | 1.0 | 1.0 | 0.0 | 1.0 | 1.5 | 0.5 | 0.5 | 0.001 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1.5 | 1.0 | 0.5 | 1.5 | 0.5 | 0.5 | 0.0 | NaN | NaN |
| GRB23-YR-15 | YR | GRFTR | 0 | 0.0 | 1.0 | 0.0 | 0.0 | 1.0 | NaN | NaN | NaN | NaN | NaN | NaN | NaN | NaN | 0.010 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.5 | 0.5 | 0.001 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 2.0 | 1.0 | 1.0 | 1.5 | 1.0 | 0.5 | 2.0 | NaN | fragment of top, missing clear vertical cross section for macrostructure |
| GRB23-YR-17 | YR | GRFTR | 0 | NaN | NaN | NaN | NaN | NaN | NaN | NaN | NaN | 1.0 | NaN | NaN | NaN | NaN | 0.010 | 1.0 | 0.0 | 0.0 | 1.0 | 1.0 | 0.5 | 0.5 | 0.001 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 2.0 | 1.0 | 0.5 | 2.0 | 1.0 | 1.0 | 2.0 | CT | fragment, cannot get macroscopic information |
| GRB23-YR-20 | YR | GRFTR | 0 | 1.0 | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 0.010 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.5 | 0.5 | 0.001 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 2.0 | 1.0 | 1.5 | 0.5 | 1.0 | 0.5 | 2.0 | NaN | NaN |
| GRB23-YR-21 | YR | GRFTR | 0 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 1.0 | 0.0 | 1.0 | 1.0 | 1.0 | 0.010 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.5 | 0.5 | 0.001 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 2.0 | 1.0 | 2.0 | 0.5 | 2.0 | 1.0 | 1.0 | CT | NaN |
| GRB23-YR-22 | YR | GRFTR | 0 | 1.0 | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 1.0 | 1.5 | 1.0 | 1.0 | 0.010 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.5 | 0.5 | 0.001 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 2.0 | 1.0 | 1.5 | 0.5 | 1.0 | 1.0 | 2.0 | NaN | NaN |
| GRB23-YR-3 | YR | GRFTR | 0 | 1.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 1.0 | 0.0 | 1.0 | 0.0 | 1.0 | 1.0 | 1.0 | 0.010 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.5 | 0.5 | 0.001 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1.5 | 1.0 | 1.0 | 1.5 | 1.0 | 0.5 | 2.0 | CT | NaN |
| GRB23-YR-4 | YR | GRFTR | 0 | 1.0 | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 1.0 | 1.0 | 1.5 | 1.0 | 0.0 | 0.010 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.5 | 0.5 | 0.001 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 2.0 | 1.0 | 2.0 | 0.5 | 1.0 | 0.5 | 1.0 | NaN | NaN |
| GRB23-YR-5 | YR | GRFTR | 0 | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 1.0 | 1.5 | 1.0 | 0.0 | 0.010 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.5 | 0.5 | 0.001 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1.5 | 1.0 | 1.0 | 1.5 | 1.0 | 0.5 | 2.0 | NaN | NaN |
| GRB24-YR-2 | YR | GRFTR | 0 | 1.0 | 0.0 | 1.0 | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 | 1.0 | 1.0 | 2.0 | 1.0 | 0.0 | 0.010 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.5 | 0.5 | 0.001 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 2.0 | 1.0 | 1.0 | 2.0 | 1.0 | 1.0 | 2.0 | TS | NaN |

## CategoryKey
| Unnamed: 0 | Unnamed: 1 | Unnamed: 2 | Notes |
| --- | --- | --- | --- |
| Silicification | 0 | carbonate | NaN |
| NaN | 1 | partial silicification | NaN |
| NaN | 2 | silicified | NaN |
| General | 0 | absent | Used for Plan View, Shape, Branching Style, Macrolaminae, Laminar Profile, Void Intercalation |
| NaN | 1 | present | NaN |
| Height:width | 0 | crustose | NaN |
| NaN | 1 | stubby | NaN |
| NaN | 2 | slender | NaN |
| Growth Variability | 0 | uniform | NaN |
| NaN | 1 | variable | NaN |
| Attitude | 0 | straight | NaN |
| NaN | 1 | sinuous | NaN |
| NaN | 2 | encapsulated | NaN |
| Scale | 0.001 | mm | NaN |
| NaN | 0.01 | cm-dm | NaN |
| NaN | 1 | m | NaN |
| Convergence | 0 | coalesced | NaN |
| NaN | 1 | anastomosed | NaN |
| Branching Mode | 0 | alpha | NaN |
| NaN | 1 | beta | NaN |
| NaN | 2 | gamma | NaN |
| Angle of Divergence | 0 | parallel | NaN |
| NaN | 1 | divergent | NaN |
| NaN | 2 | subhorizontal | NaN |
| Alternation | 0 | even | NaN |
| NaN | 1 | composite | NaN |
| NaN | 2 | film bounded | NaN |
| Synoptic Relief | 0 | low | NaN |
| NaN | 1 | moderate | NaN |
| NaN | 2 | high | NaN |
| Laminar Waviness | 0 | smooth | NaN |
| NaN | 1 | wavy | NaN |
| NaN | 2 | wrinkled | NaN |
| NaN | 3 | third order | NaN |
| Degree of Inheritance | 0 | low | NaN |
| NaN | 1 | moderate | NaN |
| NaN | 2 | high | NaN |
| Continuity | 0 | discontinuous | NaN |
| NaN | 1 | continuous | NaN |
| NaN | 2 | heterogeneous | NaN |
| Walls | 0 | unwalled | NaN |
| NaN | 1 | walled | NaN |
| NaN | 2 | patchy | NaN |
| NaN | NaN | NaN | NaN |
| StratUnit | GRFTS | Tipton Mbr., Scheggs Bed | NaN |
| NaN | GRFTR | Tipton Mbr., Rife Bed | NaN |
| NaN | GRFWP | Wilkins Peak Mbr. | NaN |
| NaN | WCB | Wasatch Fm., Cathedral Bluffs Tongue | NaN |
| NaN | GRFL | Laney Mbr. | NaN |
| NaN | GRF | Green River Float | NaN |
| NaN | NaN | NaN | NaN |
| Analyses | TS | Thin section | NaN |
| NaN | CT | microCT scanning | NaN |
| NaN | WDS | Wavelength-dispersive X-ray Spectrometry (electron microprobe) | NaN |
| NaN | XRD | X-ray Diffraction | NaN |
| NaN | Clumped | Clumped isotope analysis (carbonates) | NaN |
| NaN | Corg | Organic carbon and nitrogen isotope analysis | NaN |