

| Time Scale                   | Lithological Unit        | Ammonoid Zone                    | Bed                                 | Conodont Pectiniform Elements                            |                                                                                                    |                                                                                              | Whole Fish Teeth                                                  |      | δ18O Phase |      |     |    |
|------------------------------|--------------------------|----------------------------------|-------------------------------------|----------------------------------------------------------|----------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|-------------------------------------------------------------------|------|------------|------|-----|----|
|                              |                          |                                  |                                     | Sampled Conodonts                                        | Mean δ18O V-SMOW [‰]                                                                               | σ                                                                                            | Mean δ18O V-SMOW [‰]                                              | σ    |            |      |     |    |
| Spathian                     | "Niveaux intermédiaires" |                                  | Nam103                              | <i>Columbitella</i> sp.                                  | 18.7                                                                                               | -                                                                                            | 18.6                                                              | 0.5  | II         |      |     |    |
|                              |                          |                                  | Nam710                              | <i>Columbitella</i> sp. + <i>Triassospathodus homeri</i> | 18.2                                                                                               | 0.7                                                                                          | 20.1                                                              | 0.3  |            |      |     |    |
|                              |                          |                                  | Nam709                              | ?                                                        | 18.9                                                                                               | 0.4                                                                                          | -                                                                 | -    |            |      |     |    |
|                              | Bivalve Beds             |                                  | BV9                                 | <i>Borinella</i> sp.                                     | 17.3                                                                                               | -                                                                                            | 18.6                                                              | 0.9  |            |      |     |    |
|                              |                          |                                  | BV8                                 | <i>Columbitella</i> sp.                                  | 17.8                                                                                               | 1.1                                                                                          | -                                                                 | -    |            |      |     |    |
|                              |                          |                                  | Nam707                              | ?                                                        | 18.4                                                                                               | 0.1                                                                                          | -                                                                 | -    |            |      |     |    |
|                              |                          |                                  | BV6                                 | <i>Columbitella</i> sp. + <i>Triassospathodus homeri</i> | 17.8                                                                                               | 0.6                                                                                          | 19.1                                                              | 0.3  |            |      |     |    |
|                              |                          |                                  | BV5                                 | <i>Columbitella</i> sp. + <i>Triassospathodus homeri</i> | 16.8                                                                                               | 0.2                                                                                          | 16.3                                                              | 0.4  |            |      |     |    |
|                              |                          |                                  | BV4                                 | <i>Columbitella</i> sp.                                  | 17.3                                                                                               | 0.9                                                                                          | 19.5                                                              | 0.2  |            |      |     |    |
|                              |                          |                                  | BV3                                 | -                                                        | -                                                                                                  | -                                                                                            | 18.2                                                              | 0.4  |            |      |     |    |
|                              |                          |                                  | BV2                                 | <i>Borinella</i> sp + <i>Columbitella</i> sp.            | 17.9                                                                                               | 0.1                                                                                          | -                                                                 | -    |            |      |     |    |
|                              |                          |                                  | BV1                                 | <i>Borinella</i> sp.                                     | 18.2                                                                                               | 0.3                                                                                          | -                                                                 | -    |            |      |     |    |
| Smithian                     | late                     | Upper Ceratite Limestone         | Nam32                               | <i>Glyptopheras sinnatum</i>                             | -                                                                                                  | -                                                                                            | 16.7                                                              | 0.0  | Id         |      |     |    |
|                              |                          |                                  | Nam42                               | <i>Novispathodus pingdingshanensis</i>                   | 15.5                                                                                               | -                                                                                            | -                                                                 | -    |            |      |     |    |
|                              | middle                   |                                  | <i>Wasatchites distractus</i>       | -                                                        | -                                                                                                  | -                                                                                            | -                                                                 | -    |            | -    |     |    |
|                              |                          |                                  | <i>Nyalamites angustecostatus</i>   | Nam68                                                    | <i>Novispathodus waageni</i>                                                                       | 16.3                                                                                         | 0.2                                                               | -    |            | -    |     |    |
|                              |                          |                                  | <i>Pseudoceltites multiplicatus</i> | -                                                        | -                                                                                                  | -                                                                                            | -                                                                 | -    |            | -    |     |    |
|                              |                          |                                  | <i>Nammalites pilatoides</i>        | Nam28                                                    | <i>Neospathodus spitiensis</i>                                                                     | 16.6                                                                                         | 0.4                                                               | -    |            | -    |     |    |
|                              |                          |                                  | <i>Brayardites compressus</i>       | Nam15                                                    | <i>Neospathodus spitiensis</i>                                                                     | 15.7                                                                                         | 0.3                                                               | -    |            | -    |     |    |
|                              |                          |                                  |                                     | Nam12                                                    | <i>Neospathodus spitiensis</i> + <i>Novispathodus waageni</i> + <i>Novispathodus pakistanensis</i> | 16.3                                                                                         | 0.0                                                               | -    |            | -    |     |    |
|                              | early                    |                                  | Ceratite Sandstone                  | <i>Euflemingites cirratus</i>                            | Nam35                                                                                              | <i>Novispathodus waageni</i> + <i>Novispathodus pakistanensis</i>                            | 16.6                                                              | 0.3  |            | -    | -   | Ic |
|                              |                          |                                  |                                     | <i>Clypeoceras superbum</i>                              | Nam2                                                                                               | <i>Novispathodus waageni</i> + <i>Novispathodus pakistanensis</i>                            | 17.3                                                              | -    |            | -    | -   |    |
|                              |                          |                                  |                                     |                                                          | Nam33                                                                                              | <i>Novispathodus pakistanensis</i>                                                           | 17.8                                                              | 0.2  |            | -    | -   |    |
|                              | Dienerian                |                                  |                                     |                                                          |                                                                                                    | <i>Flemingites nanus</i>                                                                     | -                                                                 | -    |            | -    | -   | -  |
|                              |                          | <i>Xenodiscoides perplicatus</i> |                                     |                                                          |                                                                                                    | Nam65                                                                                        | <i>Novispathodus waageni</i> + <i>Novispathodus pakistanensis</i> | 17.4 | 0.4        | 18.7 | 1.2 |    |
|                              |                          |                                  |                                     |                                                          |                                                                                                    | Nam532                                                                                       | <i>Novispathodus waageni</i> + <i>Novispathodus pakistanensis</i> | 17.8 | 0.3        | 20.3 | 0.0 |    |
|                              |                          |                                  |                                     |                                                          |                                                                                                    | Nam726                                                                                       | <i>Novispathodus waageni</i>                                      | 17.3 | 0.2        | -    | -   |    |
|                              |                          | Nam542                           |                                     |                                                          |                                                                                                    | <i>Neospathodus cristagalli</i>                                                              | 17.1                                                              | 0.4  | -          | -    |     |    |
| <i>Flemingites bhargavai</i> |                          | Nam543                           |                                     |                                                          |                                                                                                    | <i>Neospathodus cristagalli</i> + <i>Neospathodus dieneri</i> + <i>Novispathodus waageni</i> | 16.6                                                              | 0.6  | -          | -    |     |    |
| MH-D11                       |                          | Nam544                           |                                     |                                                          |                                                                                                    | <i>Neospathodus cristagalli</i>                                                              | 17.0                                                              | 0.2  | -          | -    |     |    |
| MH-D10                       |                          | Nam63                            |                                     |                                                          |                                                                                                    | <i>Neospathodus cristagalli</i>                                                              | 17.1                                                              | 0.2  | -          | -    |     |    |
| MH-D9                        |                          | Nam61                            |                                     |                                                          |                                                                                                    | <i>Neospathodus cristagalli</i> + <i>Neospathodus dieneri</i>                                | 17.4                                                              | 0.3  | -          | -    |     |    |
|                              |                          | Nam502                           |                                     |                                                          |                                                                                                    | <i>Neospathodus cristagalli</i>                                                              | 16.6                                                              | 0.3  | -          | -    |     |    |
| MH-D8                        |                          | -                                |                                     |                                                          |                                                                                                    | -                                                                                            | -                                                                 | -    | -          | -    |     |    |
| MH-D7                        |                          | Nam100                           |                                     |                                                          |                                                                                                    | -                                                                                            | -                                                                 | -    | 13.5       | -    |     |    |
| MH-D6                        |                          | Nam53                            |                                     |                                                          |                                                                                                    | <i>Neospathodus cristagalli</i> + <i>Neospathodus dieneri</i>                                | 16.1                                                              | 0.2  | -          | -    |     |    |
|                              |                          | Nam50                            |                                     |                                                          |                                                                                                    | <i>Neospathodus cristagalli</i>                                                              | 16.5                                                              | 0.4  | 14.2       | 0.2  |     |    |
| MH-D5                        |                          | Nam526                           |                                     |                                                          |                                                                                                    | <i>Neospathodus dieneri</i> group                                                            | 16.2                                                              | -    | 14.8       | 0.1  |     |    |
|                              |                          | Nam384                           |                                     |                                                          |                                                                                                    | <i>Neospathodus dieneri</i> group                                                            | 16.5                                                              | 0.4  | -          | -    |     |    |
| MH-D3                        | -                        | -                                | -                                   | -                                                        | -                                                                                                  | -                                                                                            |                                                                   |      |            |      |     |    |
| Lower Ceratite Limestone     | MH-D2                    | LCL-C2                           | <i>Neogondolella</i> spp.           | 16.2                                                     | -                                                                                                  | -                                                                                            | -                                                                 |      |            |      |     |    |
|                              | MH-D1                    | Nam332                           | <i>Sweetospathodus kummeli</i>      | 17.1                                                     | 0.2                                                                                                | 14.1                                                                                         | 0.4                                                               |      |            |      |     |    |
|                              |                          | Nam330                           | <i>Sweetospathodus kummeli</i>      | 17.9                                                     | -                                                                                                  | -                                                                                            | -                                                                 |      |            |      |     |    |
|                              | MH-G3                    | LCL-C1                           | <i>Neogondolella</i> spp.           | 20.5                                                     | -                                                                                                  | 18.7                                                                                         | 0.1                                                               |      |            |      |     |    |
|                              | Kathwai Member           | MH-G2                            | Nam376                              | <i>Neogondolella</i> spp.                                | 16.9                                                                                               | 0.8                                                                                          | 15.7                                                              | -    |            |      |     |    |
|                              |                          | Nam326                           | <i>Neogondolella</i> spp.           | 16.4                                                     | -                                                                                                  | -                                                                                            | -                                                                 |      |            |      |     |    |
| MH-G1                        |                          | -                                | -                                   | -                                                        | -                                                                                                  | 14.0                                                                                         | 0.9                                                               |      |            |      |     |    |
| Griesbachian                 |                          |                                  |                                     |                                                          |                                                                                                    |                                                                                              |                                                                   |      |            |      |     |    |

Oxygen isotope measurements are all from samples from Nammal Gorge (Salt Range, northern Pakistan: N32° 39', E71° 47').