

| Horizontal<br>scale of<br>perturbation | Vertical<br>wavenumber | True<br>frequency<br>(analytic) | Horizontal<br>grid<br>distance<br>( $d$ ) | Numerical frequency      |                            |            |                          |                          |
|--|------------------------|---------------------------------|---|--------------------------|----------------------------|------------|--------------------------|--------------------------|
|  |                        |                                 |   | Z grid                   | C grid                     |            | CD grid                  | D grid                   |
|  |                        |                                 |   | $\tilde{B}, D, \omega_z$ | $\tilde{B}, D$             | $\omega_z$ | $\tilde{B}, D, \omega_z$ | $\tilde{B}, D, \omega_z$ |
| $L = 4$ km                             | $n = 320$              | 18.84724224                     | 2 km                                      | 12.13438645              | 12.09235047<br>(0.0)       | 0.0        | 0.0<br>(0.0)             | 0.0<br>(0.0)             |
|  | $n = 640$              | 9.57153193                      |   | 6.15636420               | 6.07423173<br>(0.0)        | 0.0        | 0.0<br>(0.0)             | 0.0<br>(0.0)             |
|  | $n = 1280$             | 4.87709384                      |   | 3.20070859               | 3.04064329<br>(0.0)        | 0.0        | 0.0<br>(0.0)             | 0.0<br>(0.0)             |
| $L = 200$ km                           | $n = 80$               | 1.82682191                      | 100 km                                    | 1.39545713               | <u>0.97338269</u><br>(0.0) | 0.0        | 0.0<br>(0.0)             | 0.0<br>(0.0)             |
|  | $n = 160$              | 1.25874004                      |   | 1.21395442               | <u>0.48670642</u><br>(0.0) | 0.0        | 0.0<br>(0.0)             | 0.0<br>(0.0)             |
|  | $n = 320$              | 1.07056681                      |   | 1.05756165               | <u>0.24335698</u><br>(0.0) | 0.0        | 0.0<br>(0.0)             | 0.0<br>(0.0)             |