EOSC 114: The Catastrophic Earth: Natural Disasters

encircle one: Section 101 Section 102

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1) Consider a wave with L = 100 m. As it passes a patch of ocean where depth is indicated on column 1, fill in columns 2 – 3 in the Table below.

|  |  |  |  |
| --- | --- | --- | --- |
| **Depth of Water, d** | **Is d ≥ L ÷ 2?** | **Is d ≤ L ÷ 20?** | **Type of Wave (deep, intermediate or shallow)** |
| 75 m | Yes | No | Deep |
| 50 m | Yes | No | Deep |
| 25 m | No | No | Intermediate |
| 10 m | No | No | Intermediate |
| 5 m | No | Yes | Shallow |

2) Consider a patch of ocean with depth as indicated in row 1. As a wave passes this patch of ocean, what should be its maximum wavelength to be considered a deep water wave (row 2)? what should be its minimum wavelength to be considered a shallow water wave (row 3)?

|  |  |  |  |
| --- | --- | --- | --- |
|  | **d = 4,000 m** | **d = 500 m** | **d = 5 m** |
| Maximum L to be a  **Deep water wave** | 8000 m | 1000 m | 10 m |
| Minimum L to be a  **Shallow water wave** | 80000 m | 10000 m | 100 m |