Speed of Sound Data

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| --- | --- | --- | --- |
| **Altitude** | **Temperature** | **Measured Speed of Sound** | **Theoretical Speed of Sound** |
| **(m above sea level)** | **(°C)** | **(m/s)** | **(m/s)** |
| 2,200 | 15 | 340 |  |
| 3,000 | 8 | 337 |  |
| 4,000 | 2 | 331 |  |
| 5,000 | -4 | 326 |  |
| 6,000 | -12 | 314 |  |
| 7,000 | -17 | 296 |  |
| 8,000 | -23 | 261 |  |
| 9,000 | -31 | No data |  |
| 10,000 | -40 | No data |  |

**To calculate theoretical speed of sound:**

*Speed of sound* =$\sqrt{yRT}$

$y$ = *ratio of specific heats for air* = 1.4

$R$ = gas constant of air = $287 m^{2}/s^{2}/K$

*T = absolute temperature of air* *= T(°C)* + 273.15