

	Comparison of 500K <u><a href="#">GeoidHeights.dat.gz</a></u> tests for 2 height interpolators <u><a href="#">GeoidKarney</a></u> (Karney's C++ class Geoid transcoded to Python) and <u><a href="#">GeoidPGM</a></u> (based on <i>scipy/numpy</i> 's cubic RectBivariateSpline) with <i>pygeodesy</i> 22.01.05.				
<i>pygeodesy.GeoidKarney</i>					
	<b><i>egm2008-1.pgm</i></b>	<b><i>egm96-5.pgm</i></b>	<b><i>egm84-15.pgm</i></b>		
<b>Eps Max*</b>	0.002186	0.002603	0.017281	meter	
<b>Eps Mean*</b>	0.000533	0.000539	0.000821	meter	
<b>Eps Stdev*</b>	0.000372	0.000377	0.000807	meter	
Python 2.7.16	263.259	261.003	278.959	secs**1	
Python 3.7.2	148.373	150.067	153.365	secs**1	
PyPy 6 / 2.7.13	67.497	67.611	59.374	secs**1	
PyPy 6 / 3.5.3	88.427	83.209	70.575	secs**1	
Python 3.8.10	48.406	47.955	46.147	secs**2	
Python 3.9.6	137.616	82.536	76.668	secs**3	
Python 3.10.1	26.411	25.888	24.789	secs**4	
<i>Python 3.10.8</i>	21.263	21.008	22.518	secs**5	
<i>Python 3.13.11</i>	18.530	18.287	17.662	secs**5	
<i>Python 3.14.2</i>	21.203	19.888	19.582	secs**5	
<i>Python 3.14.2</i>	12.940	11.655	11.178	secs**6	
<i>pygeodesy.GeoidPGM</i>					
	<b><i>egm2008-1.pgm</i></b>	<b><i>egm96-5.pgm</i></b>	<b><i>egm84-15.pgm</i></b>		
<b>Eps Max*</b>	0.010985	0.017929	0.022971	meter	
<b>Eps Mean*</b>	0.000629	0.000631	0.000637	meter	
<b>Eps Stdev*</b>	0.000421	0.000425	0.000445	meter	
Python 2.7.16	121.390***	49.753	48.561	secs**1	
Python 3.7.2	113.012***	40.963	38.983	secs**1	
Python 3.8.10	35.922***	15.566	14.373	secs**2	
<i>Python 3.10.8</i>	19.921***	7.872	8.231	secs**5	
<i>Python 3.13.11</i>	21.981***	7.055	6.268	secs**5	
*) <b>Eps Max, Mean, Stdev</b> are the maximum, mean and standard deviation of the (abs) difference between the pygeodesy and <i>GeoidHeights.dat</i> heights.					
**) Run times for Python 2.7.16, 3.7.2 and PyPy 6 on macOS 10.13.6 High Sierra and iMac, 12 GB, 3 GHz Core i3, all in 64-bit only.					
**2) Run time for Python 3.8.10 on macOS 12.1 Monterey and MacBook Air (M1, 2020), 16 GB, Apple M1 Silicon, Intel emulation in 64-bit.					
**3) Run time for Python 3.9.6 on macOS 10.16 Big Sur (aka 11.6.1) and MacBook Air (Retina 2020), 16 GB, 1.2 GHz Quad-Core i7 in 64-bit.					
**4) Run time for Python 3.10.1 on macOS 12.1 Monterey and MacBook Air (M1, 2020), 16 GB, Apple M1 Silicon, 64-bit natively.					
**5) Run time for Python 3.10.8, 3.13.11 and 3.14.2 on macOS 26.2 Tahoe and MacBook Air (M4, 2025), 16 GB, Apple M4 Silicon, 64-bit natively.					
**6) As **5) but for pygeodesy 26.02.02 and Python 3.14.2 -OO ...					
**7) About half is needed to load the 466 MB+ <b><i>egm2008-1.pgm</i></b> file and convert 233 M+ 2-byte <i>ushorts</i> to 8-byte <i>float64s</i> for <i>scipy/numpy</i> .					