

## Výpočet magnituda teleseismických jevů z amplitud objemových vln

- použijeme excelovskou tabulku magnituda.xls

vypočti magnitudo z amplitudy a periody objemových vln, použij údaje z bulletinu USGS:

a) 23 NOV 2009 (327)

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ot = 07:25:23.32 +/- 1.45 EASTERN SICHUAN, CHINA
lat = 31.049 +/- 9.9
lon = 103.469 +/- 11.9 MAGNITUDE 4.6 (GS)
dep = 10.0 (geophysicist)
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70 km (45 miles) NW of Chengdu, Sichuan, China (pop 2,146,000)  
 130 km (80 miles) WSW of Mianyang, Sichuan, China (pop 396,000)  
 340 km (210 miles) WNW of Chongqing, Chongqing, China  
 1530 km (950 miles) SW of BEIJING, Beijing, China

nph = 14 of 14 se = 0.72 FE=307 A

error ellipse = ( 76.0, 0.0, 15.9;166.0, 0.0, 12.9; 0.0, 0.0, 0.0)

sta	phase	arrival	res	dist	azm	amp	per	mag	amp	per	mag	sta
CHTO	ePn	07:28:26.76	0.6	12.9	199	g:5.0+0	1.3					CHTO
ULN	ePn	07:29:23.53	2.0	17.0	8	b:2.0+1	1.3					ULN
MKAR	eP	07:30:25.47	-0.5	22.7	319							MKAR
JNU	eP	07:30:31.89	0.1	23.3	77	b:3.9+1	1.9					JNU
AAK	eP	07:30:56.50	-0.8	25.8	304	b:2.4+1	1.1					AAK
KURK	eP	07:31:04.71	-0.2	27.0	323	b:1.2+1	.90					KURK
KKAR	eP	07:31:21.01	0.1	28.7	304							KKAR
BRVK	eP	07:31:58.23	3.6	32.6	322	b:7.5+0	.90					BRVK
ABKAR	eP	07:32:35.66	0.2	37.3	311							ABKA
TIXI	eP	07:33:21.52	-0.1	42.9	11	b:5.7+0	.80					TIXI
WRAB	eP	07:35:20.71	-0.8	58.8	145	b:4.2+1	1.4					WRAB
DPC	eP	07:36:04.46	0.5	65.0	315							DPC
COLA	eP	07:36:32.47	-0.5	69.6	25							COLA
CEL	eP	07:36:33.30	-0.9	69.8	303							CEL

b) 22 NOV 2009 (326)

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ot = 22:47:28.28 +/- 0.49 KERMADEC ISLANDS REGION
lat = -31.587 +/- 4.1
lon = 179.419 +/- 4.5 MAGNITUDE 6.2 (UCMT)
dep = 438.9 +/- 5.4
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160 km (100 miles) W of L'Esperance Rock, Kermadec Islands (pop N/A)  
 365 km (230 miles) SW of Raoul Island, Kermadec Islands  
 725 km (450 miles) NE of Auckland, New Zealand  
 1155 km (720 miles) NNE of WELLINGTON, New Zealand

nph = 207 of 254 se = 1.09 FE=177 A

error ellipse = (215.0, 68.8, 8.7;306.0, 0.4, 7.4; 36.1, 21.2, 5.0)

sta	phase	arrival	res	dist	azm	amp	per	mag	amp	per	mag	sta
OUZ	eP	22:49:07.61	4.8X	6.1	232	L:5.8+0	2.2					OUZ
ODZ	eP	22:50:40.90	0.5	15.1	205	b:1.2+2	.78					ODZ
DCZ	eP	22:50:58.21	-0.7	16.8	211	b:6.0+1	.70					DCZ
WHZ	eP	22:50:59.57	0.7	16.8	209	b:1.4+2	1.1					WHZ
AFI	eP	22:51:24.73	0.0	19.4	27	b:6.9+2	.60					AFI
RAR	eP	22:51:40.35	-1.7	21.3	66	b:1.4+2	1.1					RAR
FUNA	eP	22:51:55.60	-1.5	22.9	359	b:6.9+2	.95					FUNA
ARMA	eP	22:52:09.89	4.8X	23.8	266	b:4.5+2	1.9					ARMA
EIDS	eP	22:52:23.38	2.4	25.6	277	b:1.9+2	1.1					EIDS
CAN	P	22:52:24.66	3.9X	25.6	253	g:7.9-2	1.0		X	b:1.5+2	1.2	CAN
KNTN	eP	22:52:56.94	-1.3	29.8	18	b:2.2+3	1.6					KNFN
CTAO	eP	22:53:17.78	2.2	31.8	283	b:3.6+2	1.0					CTAO
STKA	eP	22:53:19.92	2.6	32.1	259	b:3.5+1	.80					STKA

obecný postup:

- Odečtěte z bulletinu USGS potřebné údaje o amplitudě, periodě, epicentrální vzdálenosti a hloubce.
- Z grafu hodnot korekční funkce  $q$  (viz níže) odečtěte příslušnou hodnotu pro daný jev a danou stanicí.
- Vypočtěte magnitudo  $m_b$

