

# **Apêndice**

## **Detonações Realizadas no Canteiro de Obras da UHE Santo Antônio**

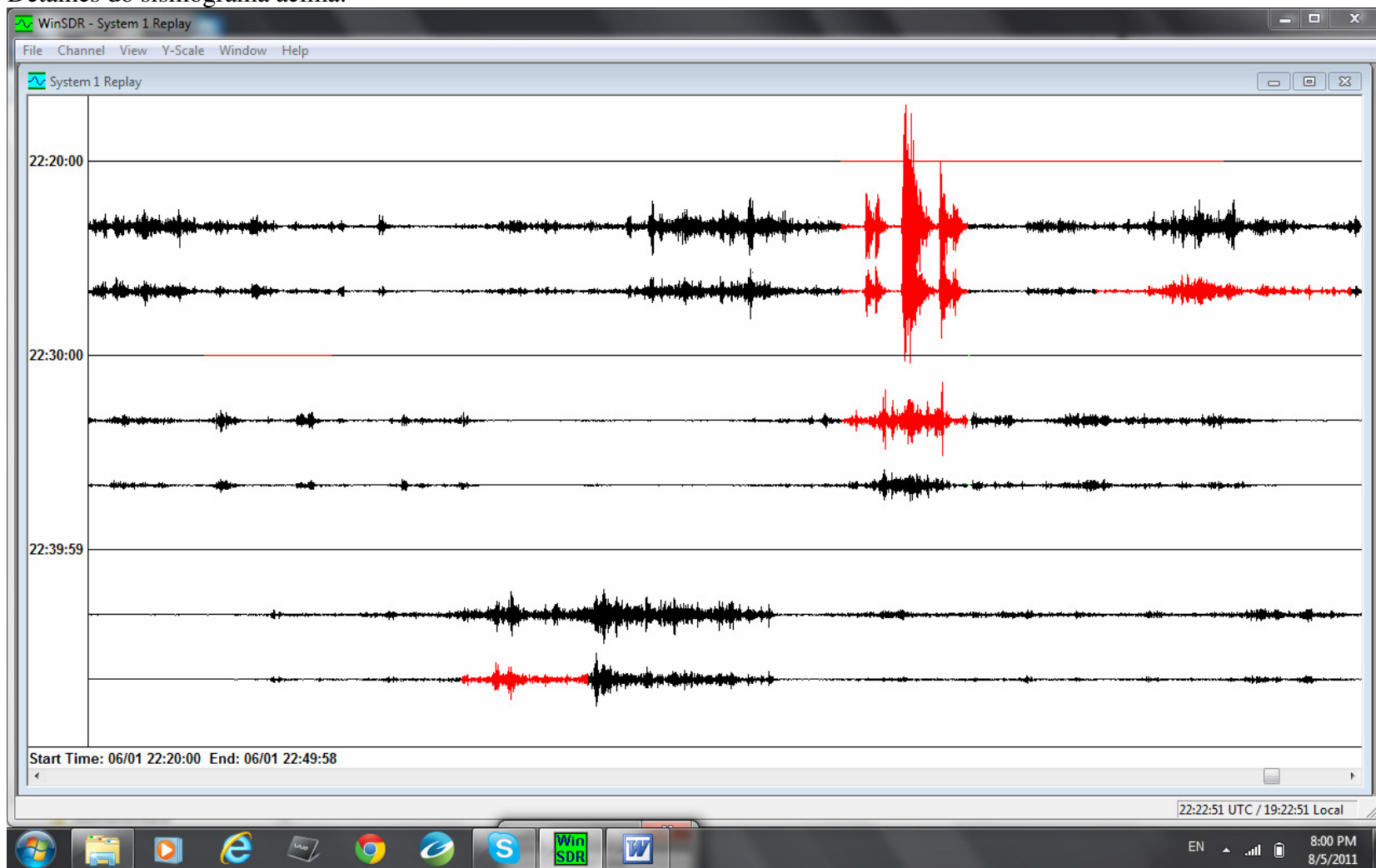
**Julho  
2011**

**Registros da Estação Sismológica de  
Samuel (SAML) e das Estações da Santo  
Antônio Energia S.A.**



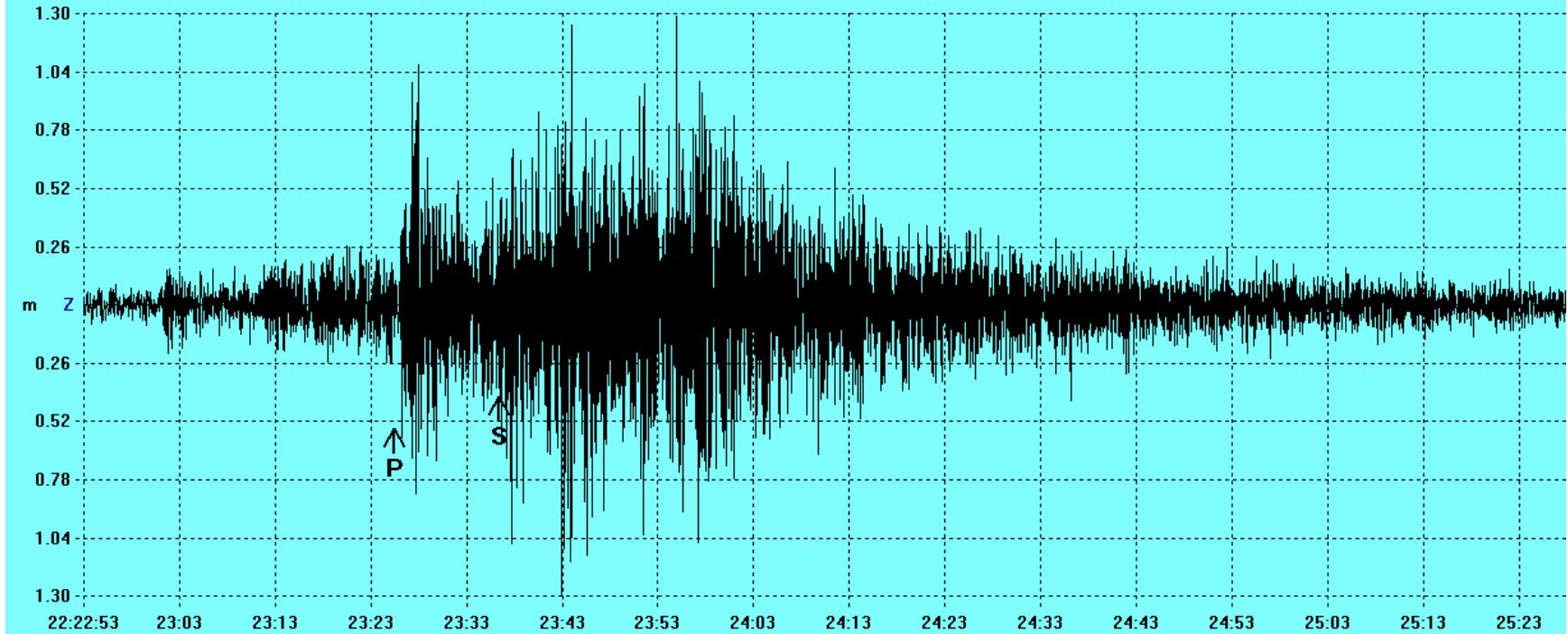
Evento 1 – Registro da Estação de Santo Antônio Energia S.A.

Detalhes do sismograma acima:



Evento 1

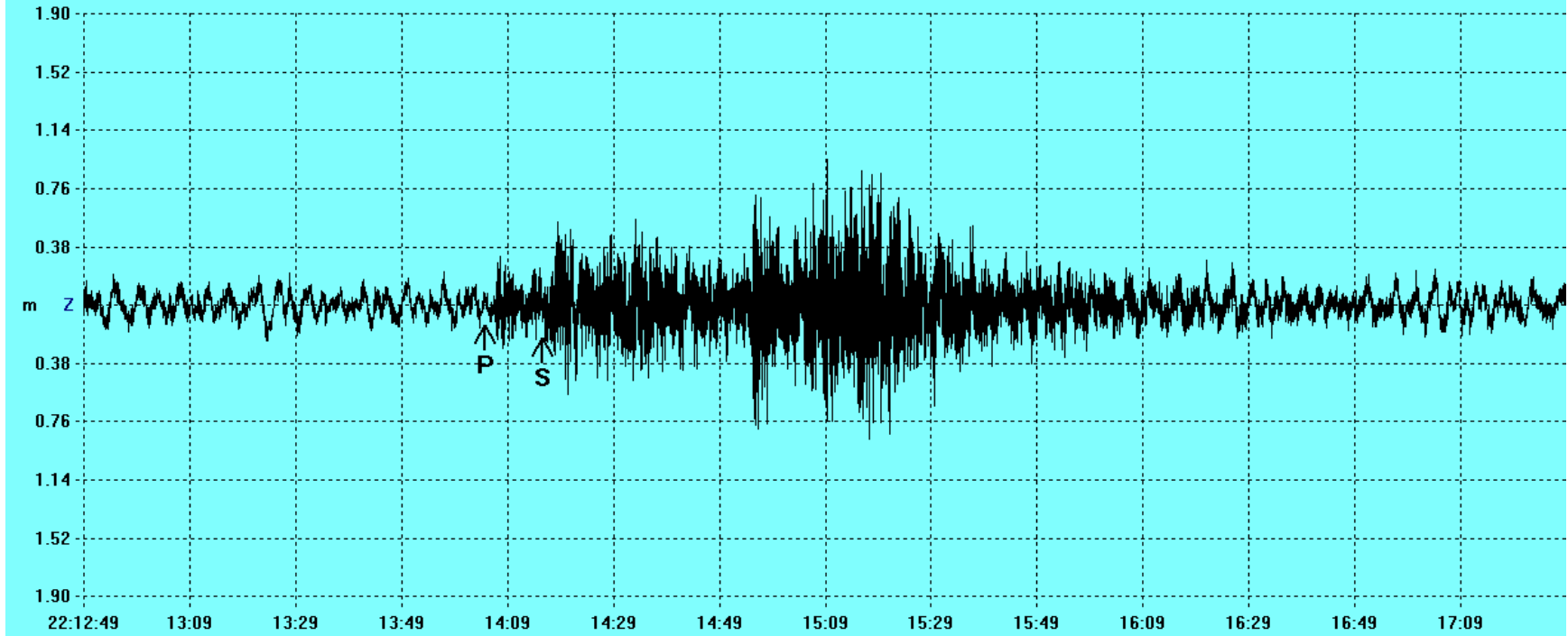
Start: 6/02/11 21:59:59 UTC Station: SAML 8.9489S 63.1831W Samples: 144001 SPS: 40  
X: 2:35.0 Y: 1.3m Max/Min: 3781/-3798 Peak: 1.293 m/sec View Peak: 1.293 m/sec  
Org: 22:23:10.5 P: 22:23:25.4 S: 22:23:36.4 Diff: 11.0sec Dist: 0.772deg 85.8km 53.3mi Mag: MI?? JB: 33



Evento 2

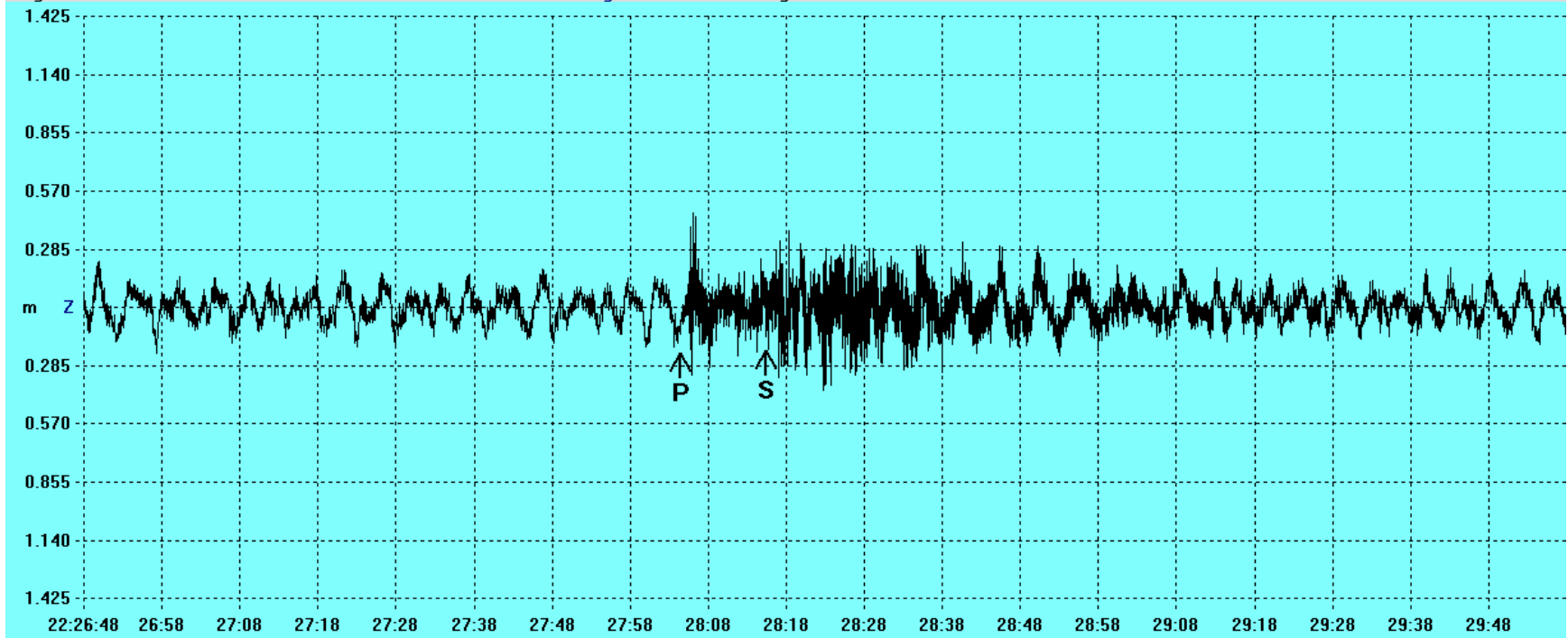
\*\*\*\*\*

Start: 7/01/11 21:59:59 UTC Station: SAML 8.9489S 63.1831W Samples: 144001 SPS: 40  
X: 4:40.0 Y: 1.9m Max/Min: 2777/-2570 Peak: 945.6 m/sec View Peak: 945.6 m/sec  
Org: 22:13:50.1 P: 22:14:04.8 S: 22:14:15.7 Diff: 10.9sec Dist: 0.761deg 84.6km 52.6mi Mag: MI?? JB: 33



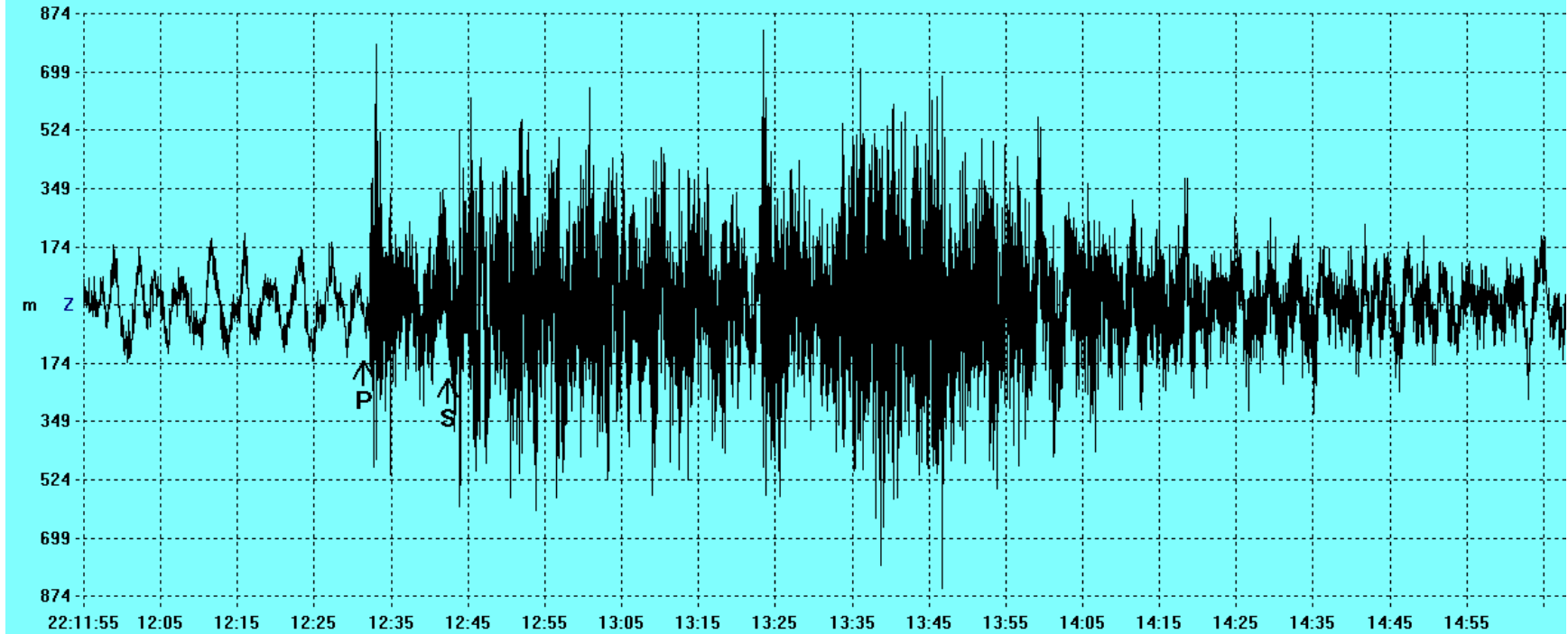
Evento 1

Start: 7/01/11 21:59:59 UTC Station: SAML 8.9489S 63.1831W Samples: 144001 SPS: 40  
X: 3:10.0 Y: 1.425m Max/Min: 2777/-2570 Peak: 945.6 m/sec View Peak: 464.4 m/sec  
Org: 22:27:49.5 P: 22:28:04.4 S: 22:28:15.4 Diff: 11.0sec Dist: 0.772deg 85.8km 53.3mi Mag: MI?? JB: 33



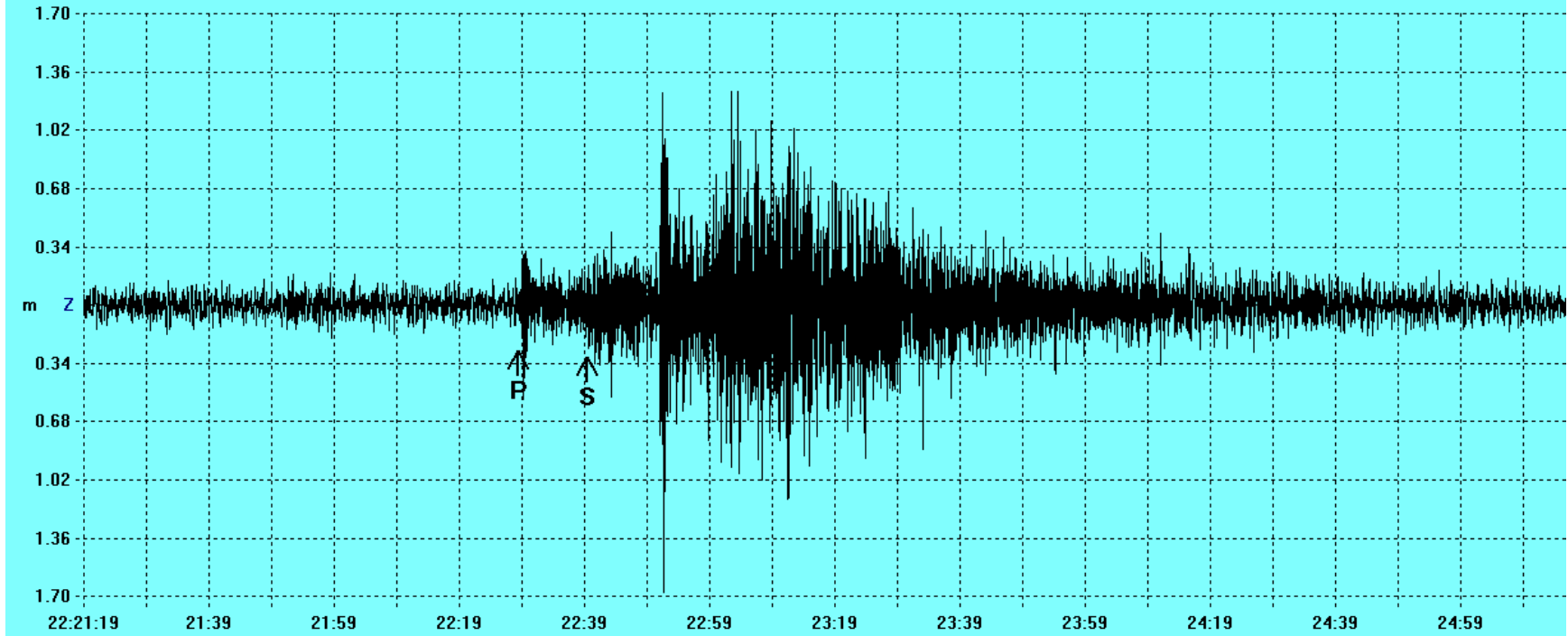
Evento 2

Start: 7/02/11 21:59:59 UTC Station: SAML 8.9489S 63.1831W Samples: 144001 SPS: 40  
X: 3:13.0 Y: 875m Max/Min: 2419/-2499 Peak: 850.9 m/sec View Peak: 850.9 m/sec  
Org: 22:12:16.5 P: 22:12:31.4 S: 22:12:42.4 Diff: 11.0sec Dist: 0.772deg 85.8km 53.3mi Mag: MI?? JB: 33



Evento 3

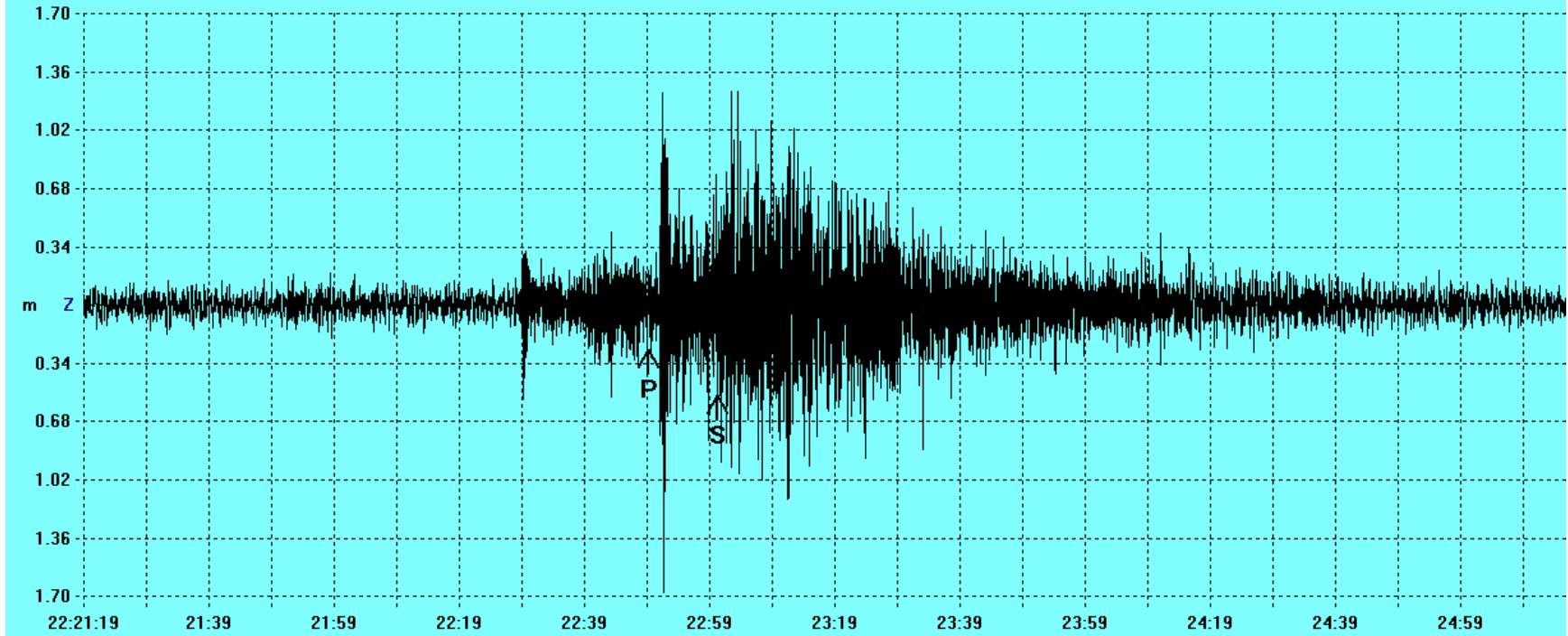
Start: 7/04/11 21:59:59 UTC Station: SAML 8.9489S 63.1831W Samples: 144001 SPS: 40  
X: 3:57.0 Y: 1.7m Max/Min: 3658/-4913 Peak: 1.673 m/sec View Peak: 1.673 m/sec  
Org: 22:22:13.5 P: 22:22:28.4 S: 22:22:39.4 Diff: 11.0sec Dist: 0.772deg 85.8km 53.3mi Mag: MI?? JB: 33



Evento 4

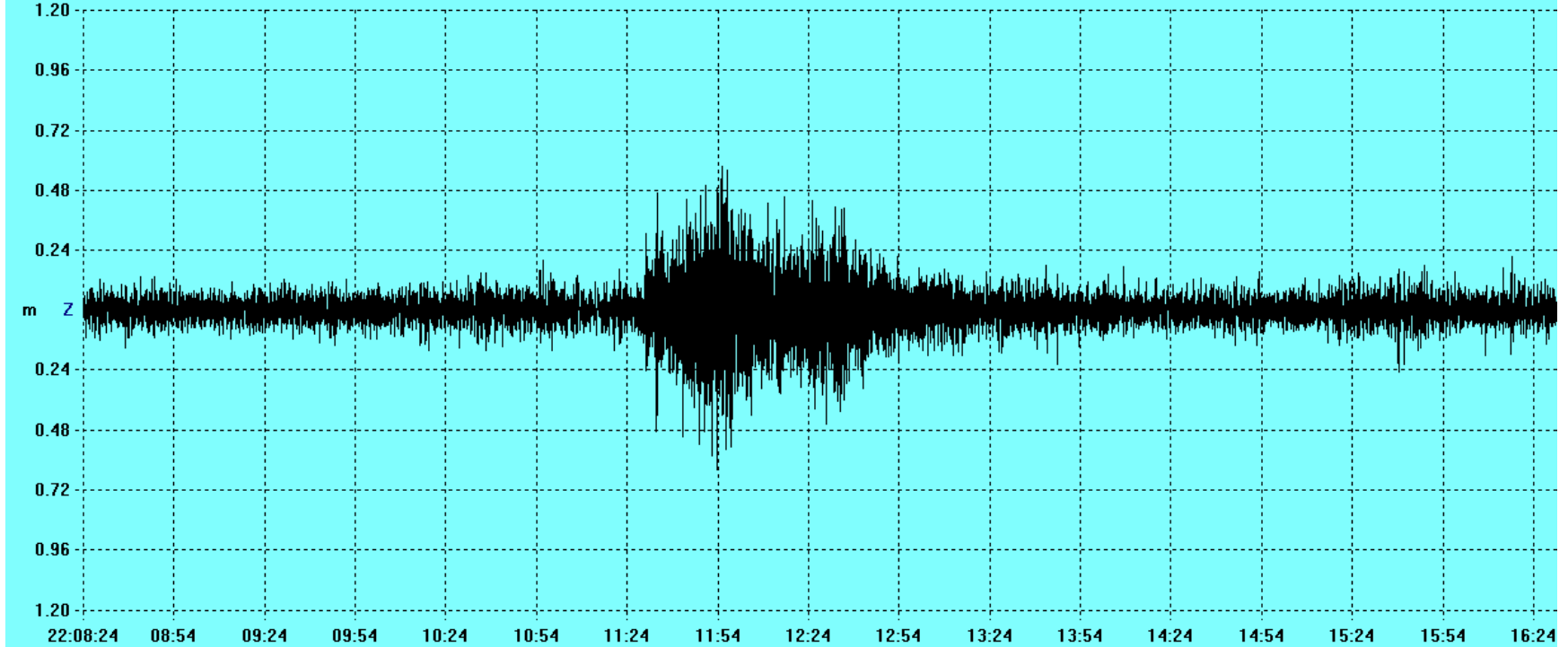


Start: 7/04/11 21:59:59 UTC Station: SAML 8.9489S 63.1831W Samples: 144001 SPS: 40  
X: 3:57.0 Y: 1.7m Max/Min: 3658/-4913 Peak: 1.673 m/sec View Peak: 1.673 m/sec  
Org: 22:22:34.2 P: 22:22:49.2 S: 22:23:00.3 Diff: 11.1sec Dist: 0.783deg 87.0km 54.1mi Mag: MI?? JB: 33



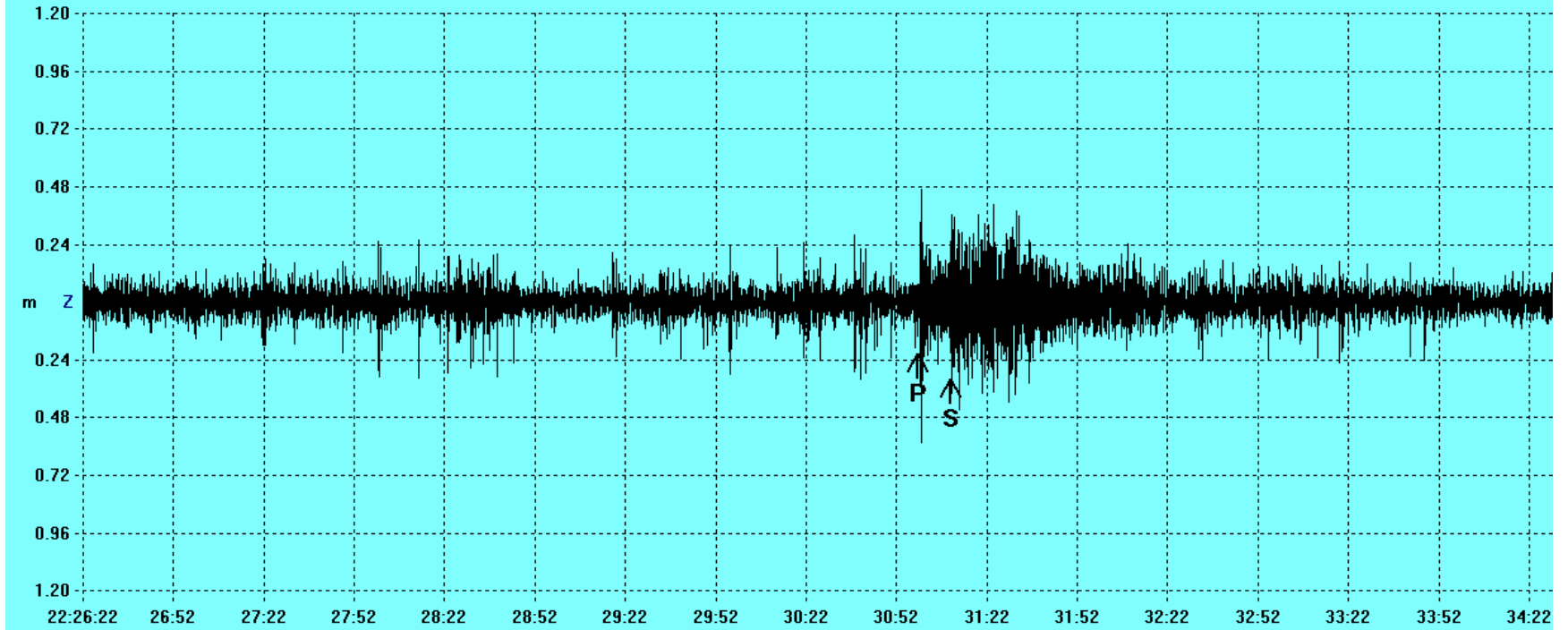
Evento 4

Start: 7/05/11 21:59:59 UTC Station: SAML 8.9489S 63.1831W Samples: 144001 SPS: 40  
X: 8:08.0 Y: 1.2m Max/Min: 128459/-175612 Peak: 59.79 m/sec View Peak: 641.1 m/sec



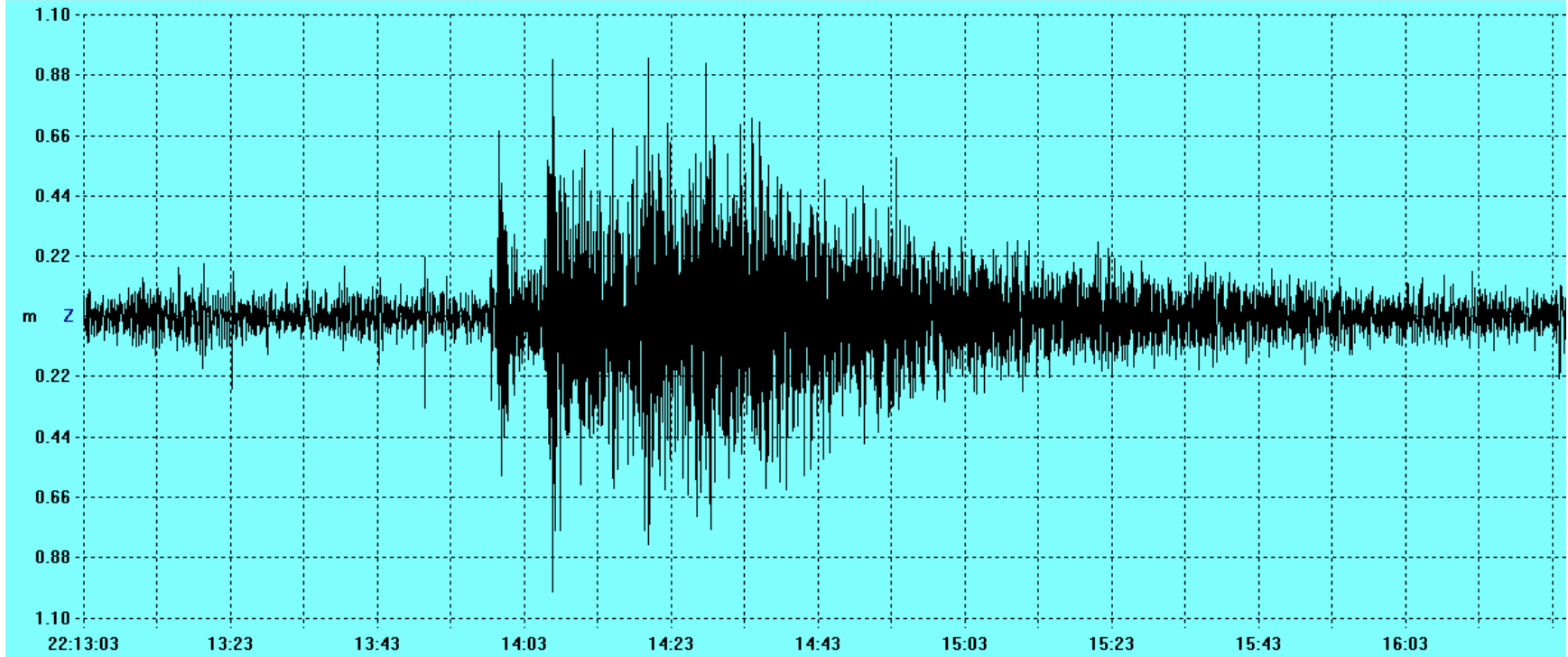
Evento 5

Start: 7/05/11 21:59:59 UTC Station: SAML 8.9489S 63.1831W Samples: 144001 SPS: 40  
X: 8:08.0 Y: 1.2m Max/Min: 128459/-175612 Peak: 59.79 m/sec View Peak: 580.9 m/sec  
Org: 22:30:44.3 P: 22:30:59.0 S: 22:31:09.9 Diff: 10.9sec Dist: 0.761deg 84.6km 52.6mi Mag: MI?? JB: 33



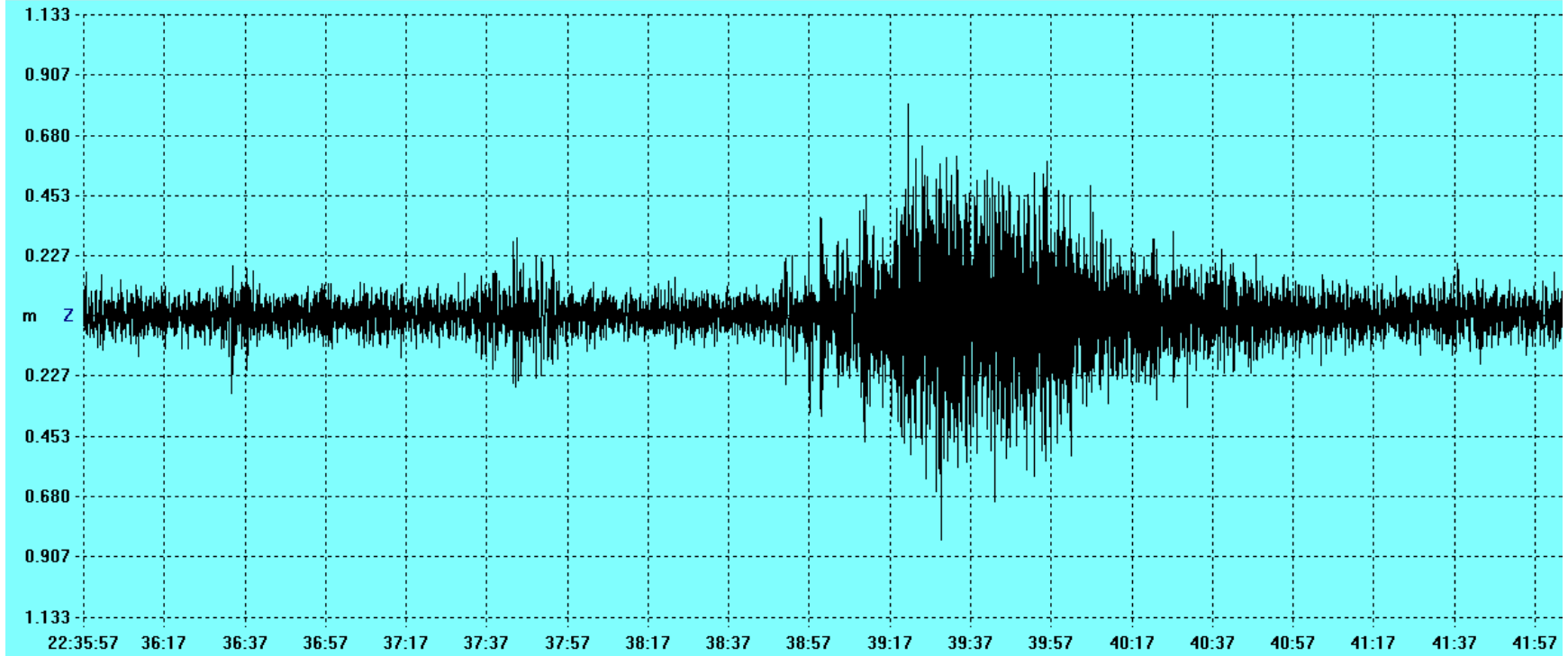
Evento 6

Start: 7/06/11 21:59:59 UTC Station: SAML 8.9489S 63.1831W Samples: 144001 SPS: 40  
X: 3:22.0 Y: 1.1m Max/Min: 2757/-2952 Peak: 1.005 m/sec View Peak: 1.005 m/sec



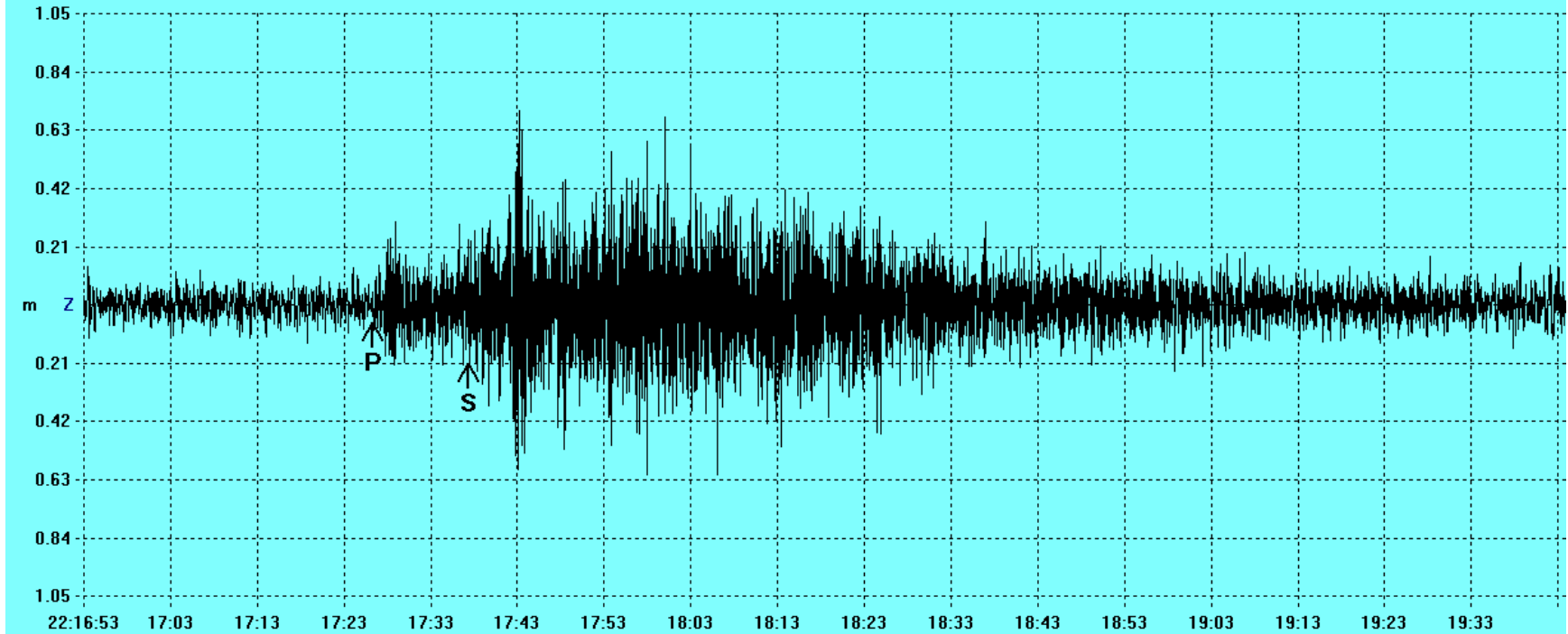
Evento 7

Start: 7/07/11 21:59:59 UTC Station: SAML 8.9489S 63.1831W Samples: 144001 SPS: 40  
X: 6:07.0 Y: 1.13333m Max/Min: 24713/-47441 Peak: 16.15 m/sec View Peak: 845.8 m/sec



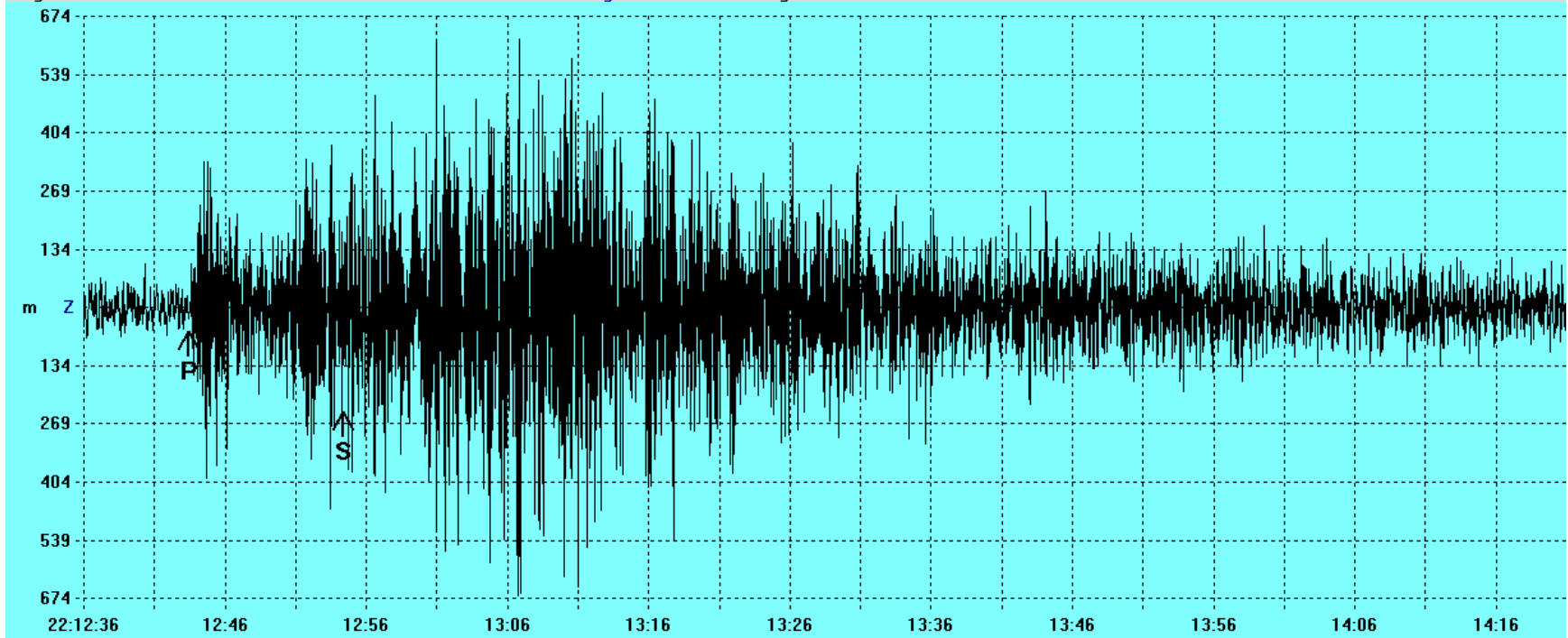
Evento 8

Start: 7/08/11 21:59:59 UTC Station: SAML 8.9489S 63.1831W Samples: 144001 SPS: 40  
X: 2:51.0 Y: 1.05m Max/Min: 4430/-6041 Peak: 2.057 m/sec View Peak: 697.8 m/sec  
Org: 22:17:11.4 P: 22:17:26.3 S: 22:17:37.3 Diff: 11.0sec Dist: 0.772deg 85.8km 53.3mi Mag: MI?? JB: 33



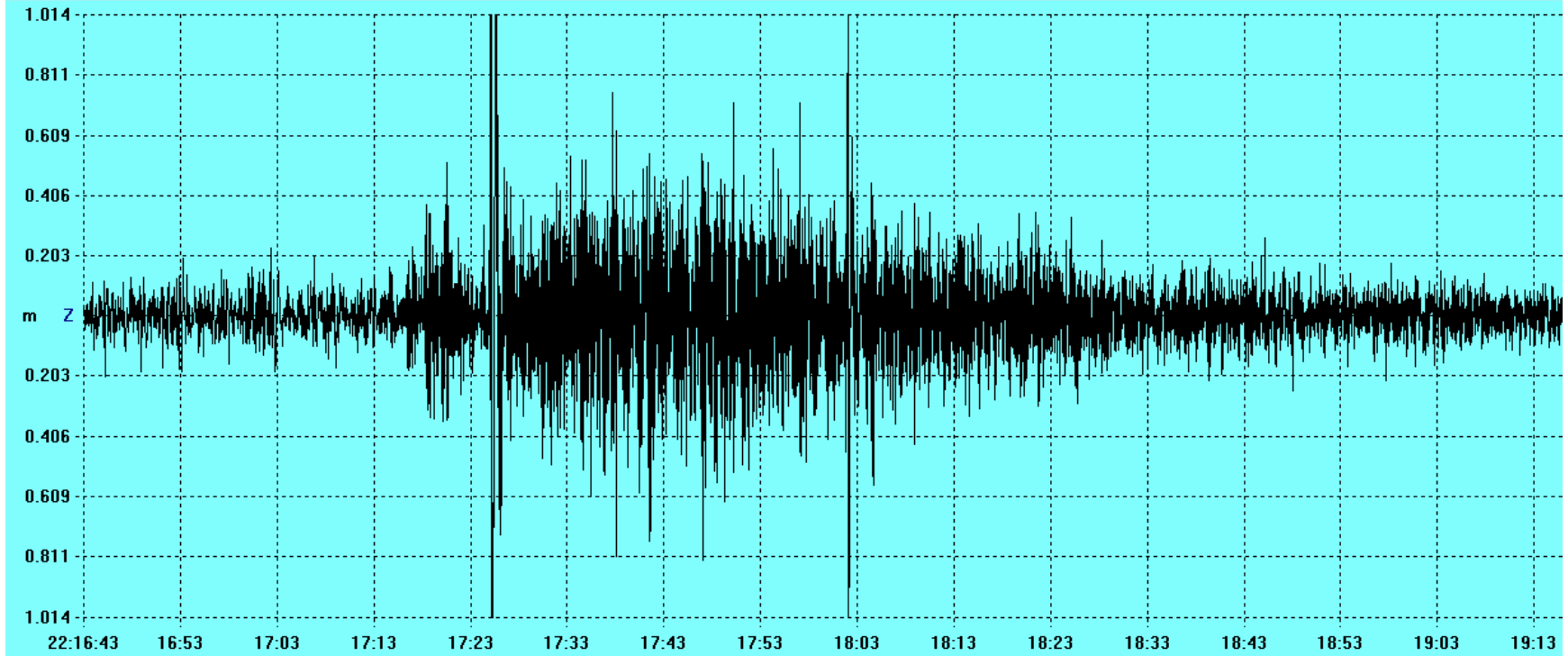
Evento 9

Start: 7/09/11 21:59:59 UTC Station: SAML 8.9489S 63.1831W Samples: 144001 SPS: 40  
X: 1:45.0 Y: 675m Max/Min: 1819/-1963 Peak: 668.5 m/sec View Peak: 668.5 m/sec  
Org: 22:12:28.5 P: 22:12:43.4 S: 22:12:54.4 Diff: 11.0sec Dist: 0.772deg 85.8km 53.3mi Mag: MI?? JB: 33



Evento 10

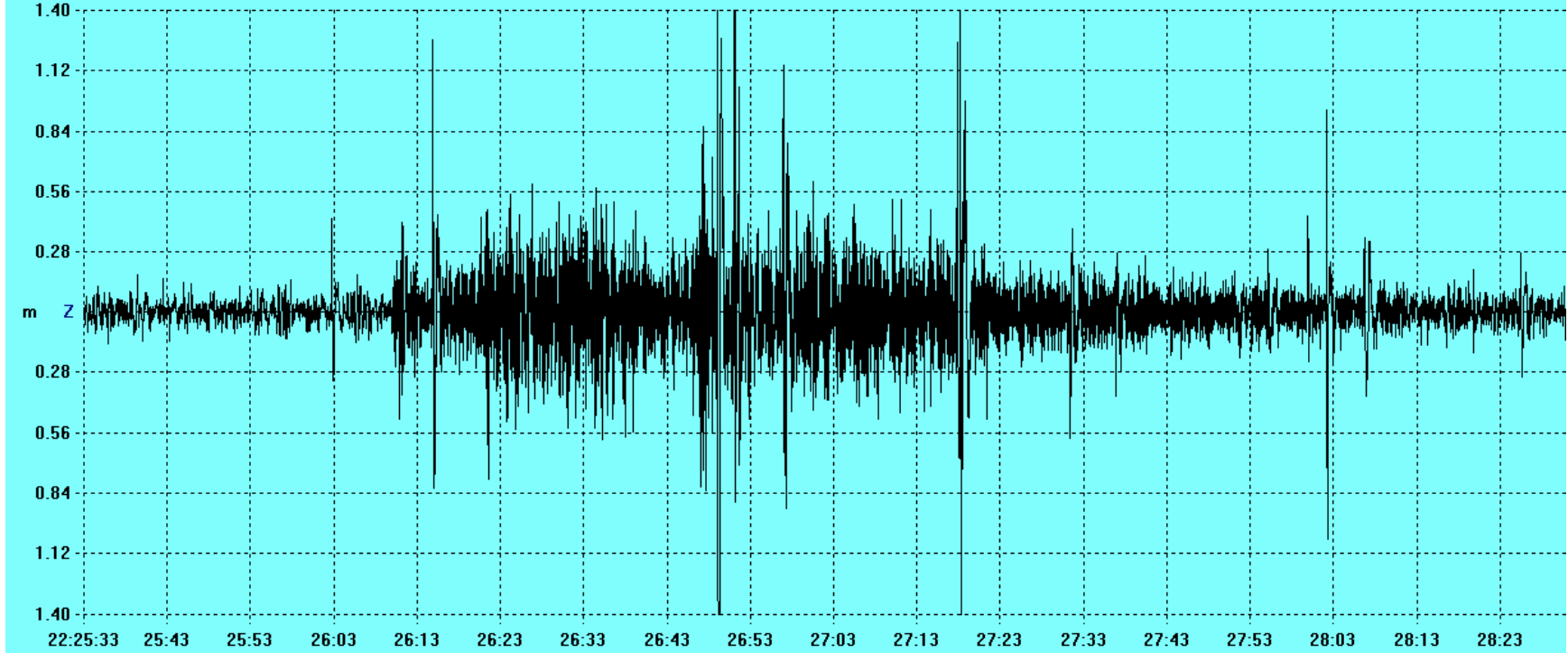
Start: 7/12/11 21:59:59 UTC Station: SAML 8.9489S 63.1831W Samples: 144001 SPS: 40  
X: 2:33.0 Y: 1.01429m Max/Min: 14316/-20848 Peak: 7.099 m/sec View Peak: 2.2 m/sec



Evento 11

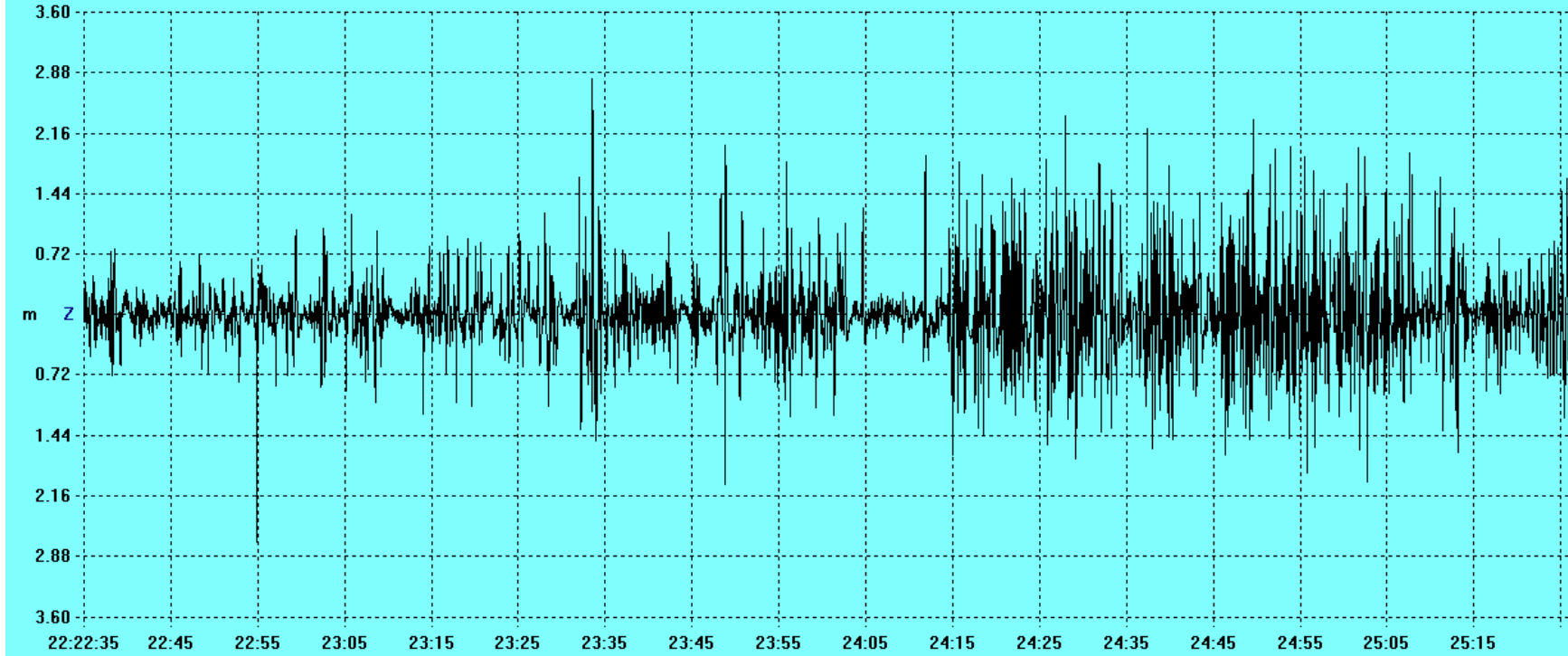


Start: 7/13/11 21:59:59 UTC Station: SAML 8.9489S 63.1831W Samples: 144001 SPS: 40  
X: 2:58.0 Y: 1.4m Max/Min: 40034/-22817 Peak: 13.63 m/sec View Peak: 5.118 m/sec



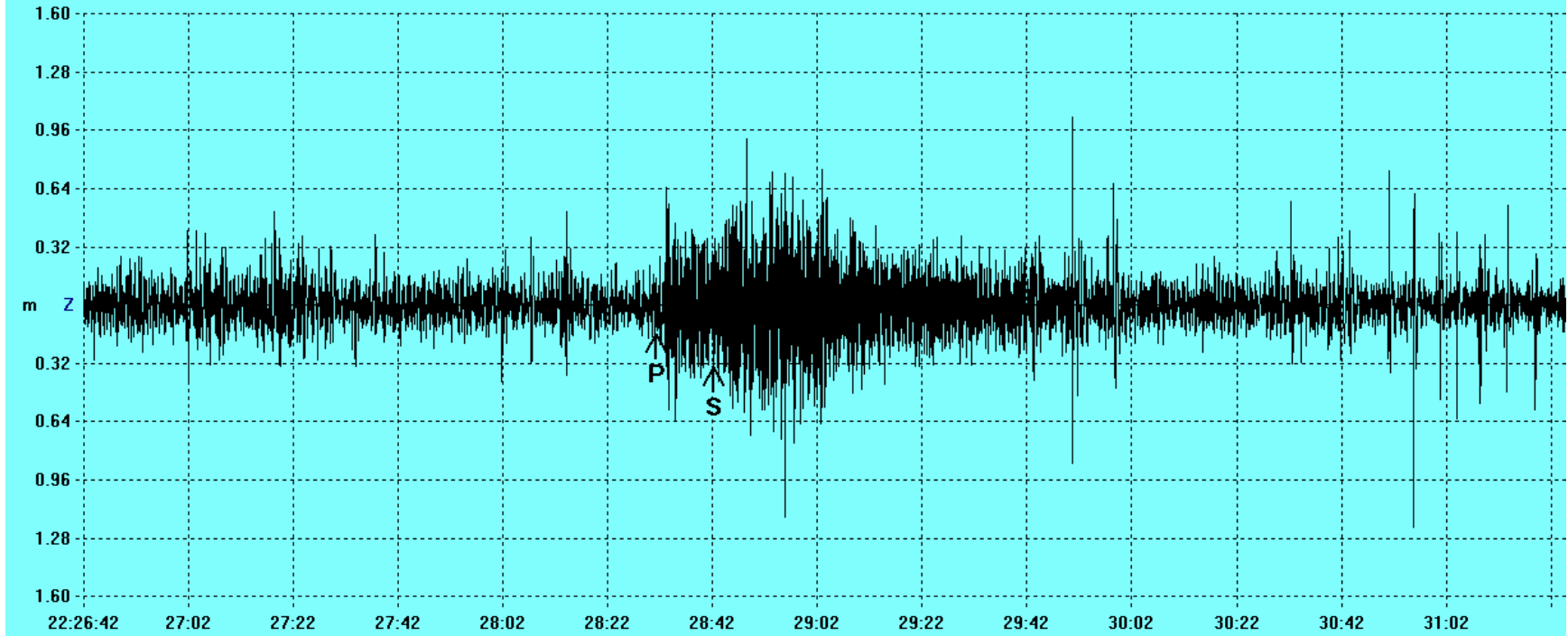
Evento 12

Start: 7/14/11 21:59:59 UTC Station: SAML 8.9489S 63.1831W Samples: 144001 SPS: 40  
X: 2:51.0 Y: 3.6m Max/Min: 9874/-10412 Peak: 3.546 m/sec View Peak: 2.805 m/sec



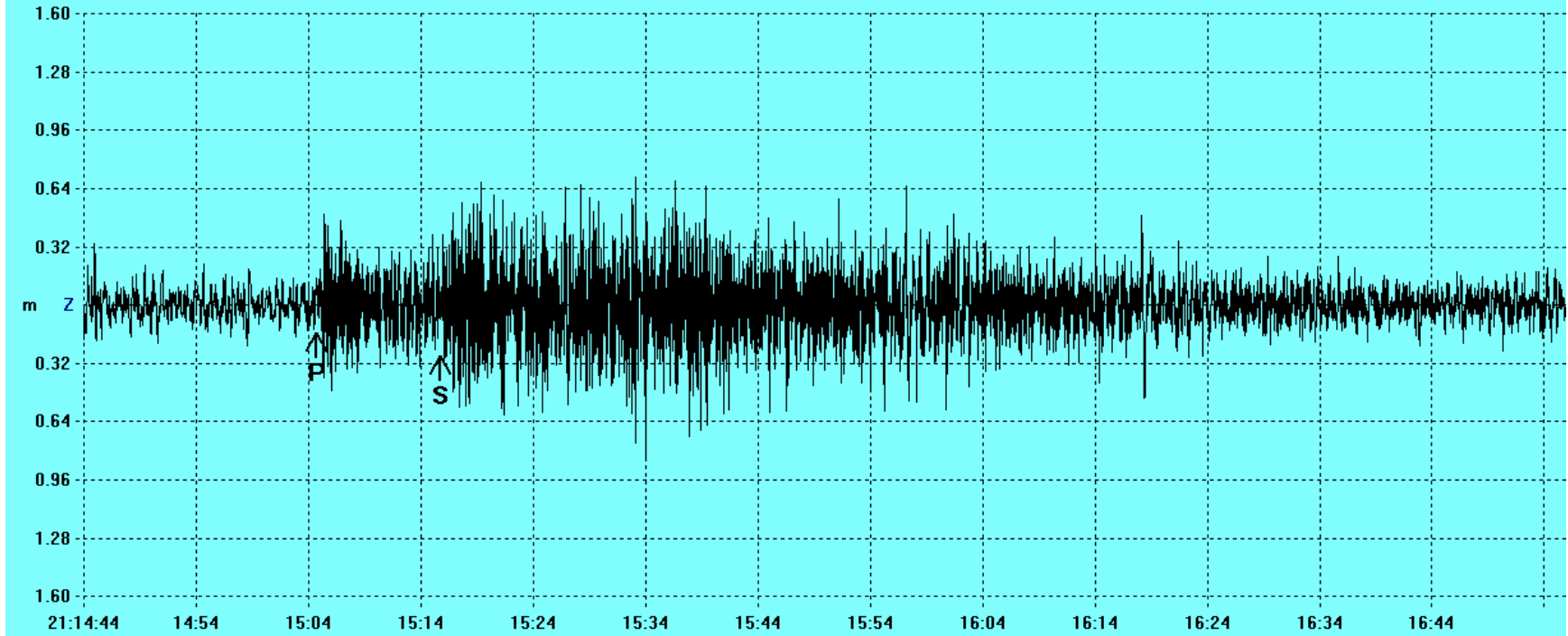
Evento 13

Start: 7/15/11 21:59:59 UTC Station: SAML 8.9489S 63.1831W Samples: 144001 SPS: 40  
X: 4.43.0 Y: 1.6m Max/Min: 11709/-11638 Peak: 3.987 m/sec View Peak: 1.221 m/sec  
Org: 22:28:16.3 P: 22:28:31.2 S: 22:28:42.2 Diff: 11.0sec Dist: 0.772deg 85.8km 53.3mi Mag: MI?? JB: 33



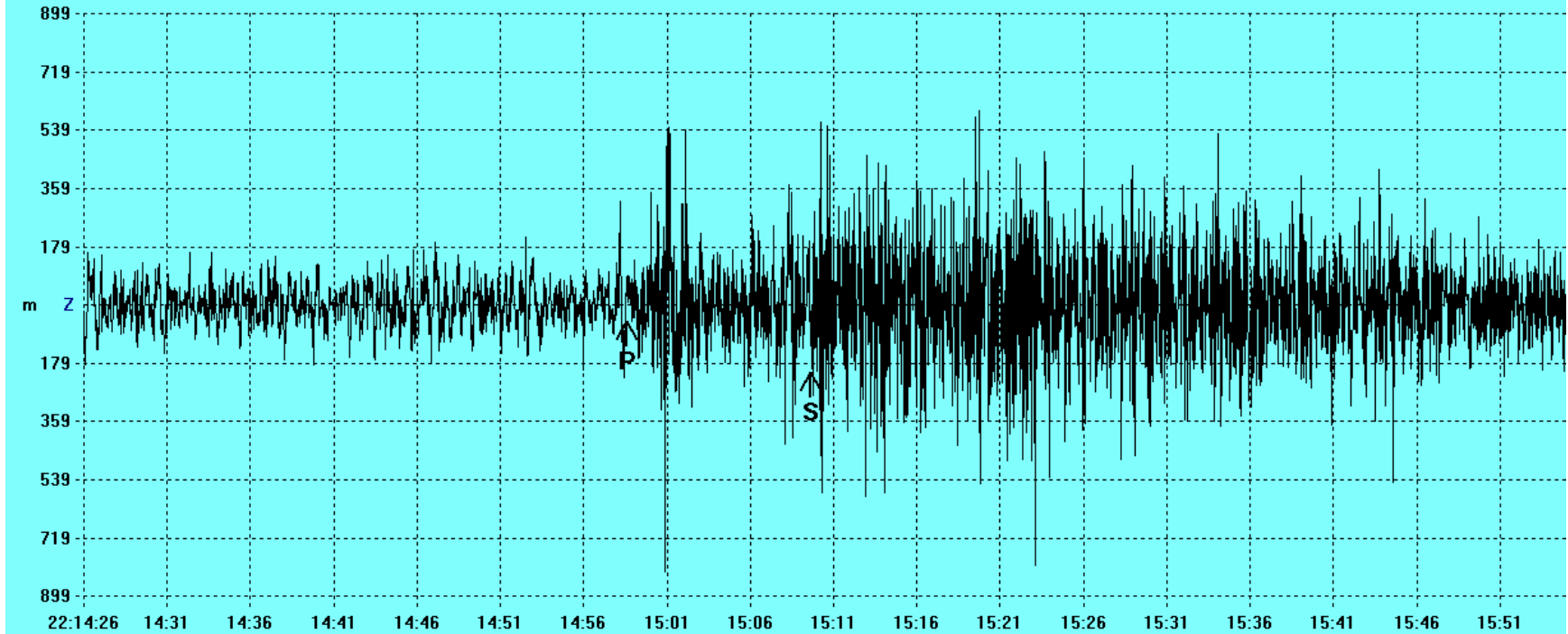
Evento 14

Start: 7/16/11 20:59:59 UTC Station: SAML 8.9489S 63.1831W Samples: 144001 SPS: 40  
X: 2:12.0 Y: 1.6m Max/Min: 70385/-61168 Peak: 23.97 m/sec View Peak: 852.9 m/sec  
Org: 21:14:49.8 P: 21:15:04.7 S: 21:15:15.7 Diff: 11.0sec Dist: 0.772deg 85.8km 53.3mi Mag: MI?? JB: 33



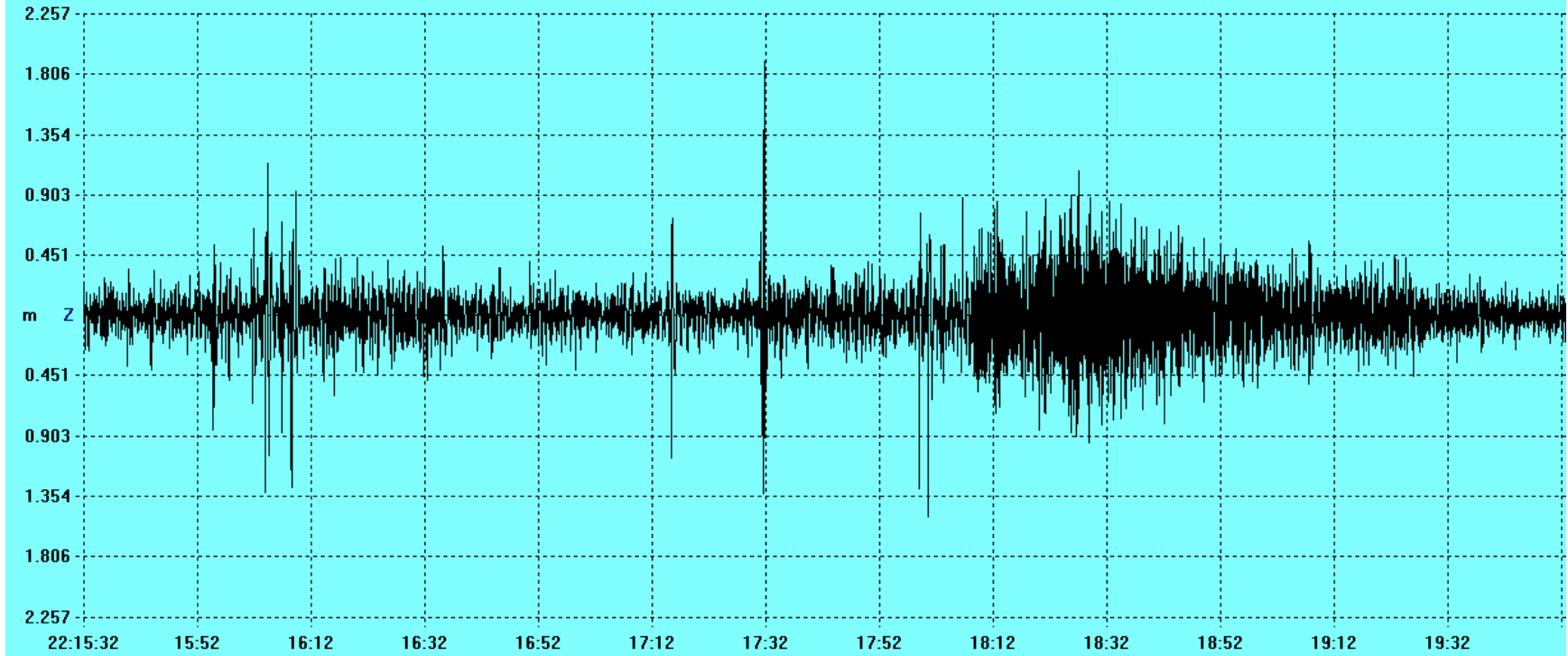
Evento 15

Start: 7/18/11 21:59:59 UTC Station: SAML 8.9489S 63.1831W Samples: 144001 SPS: 40  
X: 1.29.0 Y: 900m Max/Min: 23785/-16052 Peak: 8.099 m/sec View Peak: 821.4 m/sec  
Org: 22:14:43.7 P: 22:14:58.6 S: 22:15:09.6 Diff: 11.0sec Dist: 0.772deg 85.8km 53.3mi Mag: MI?? JB: 33



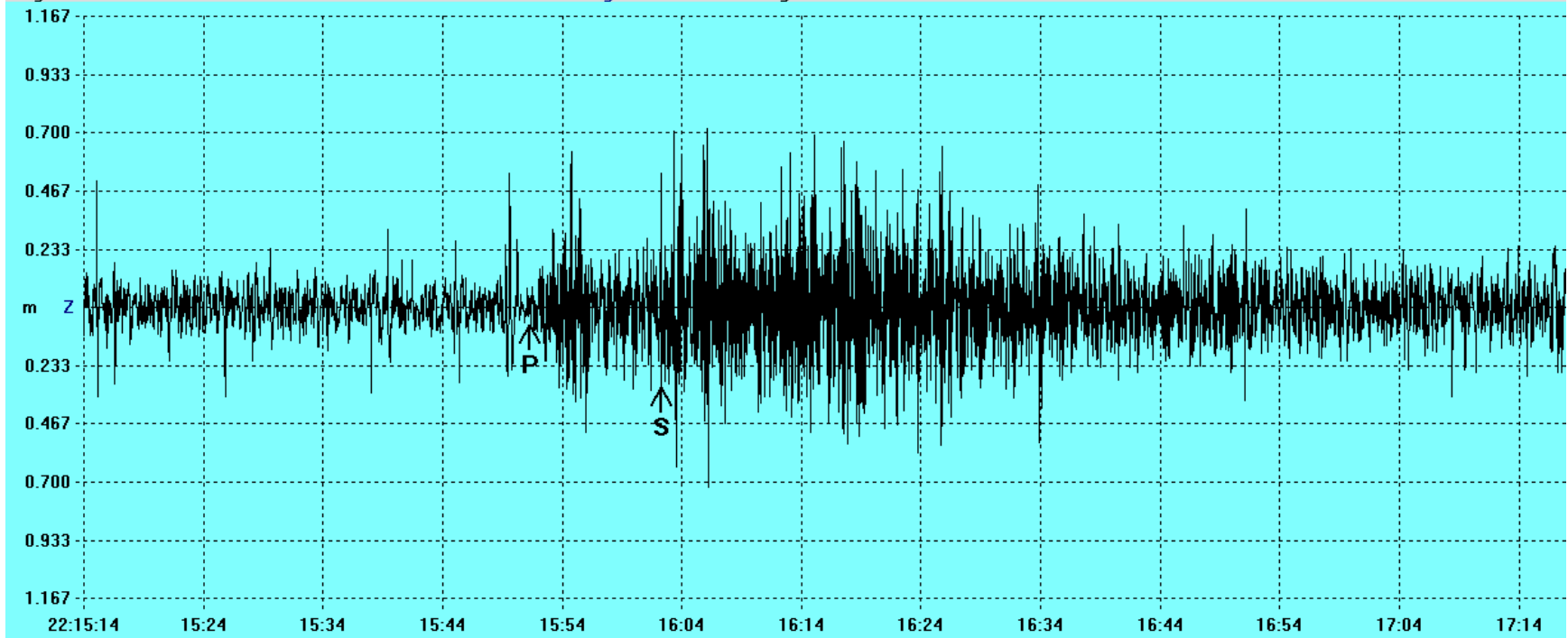
Evento 16

Start: 7/19/11 21:59:59 UTC Station: SAML 8.9489S 63.1831W Samples: 144001 SPS: 40  
X: 4.21.0 Y: 2.25714m Max/Min: 23151/-19598 Peak: 7.883 m/sec View Peak: 1.9 m/sec



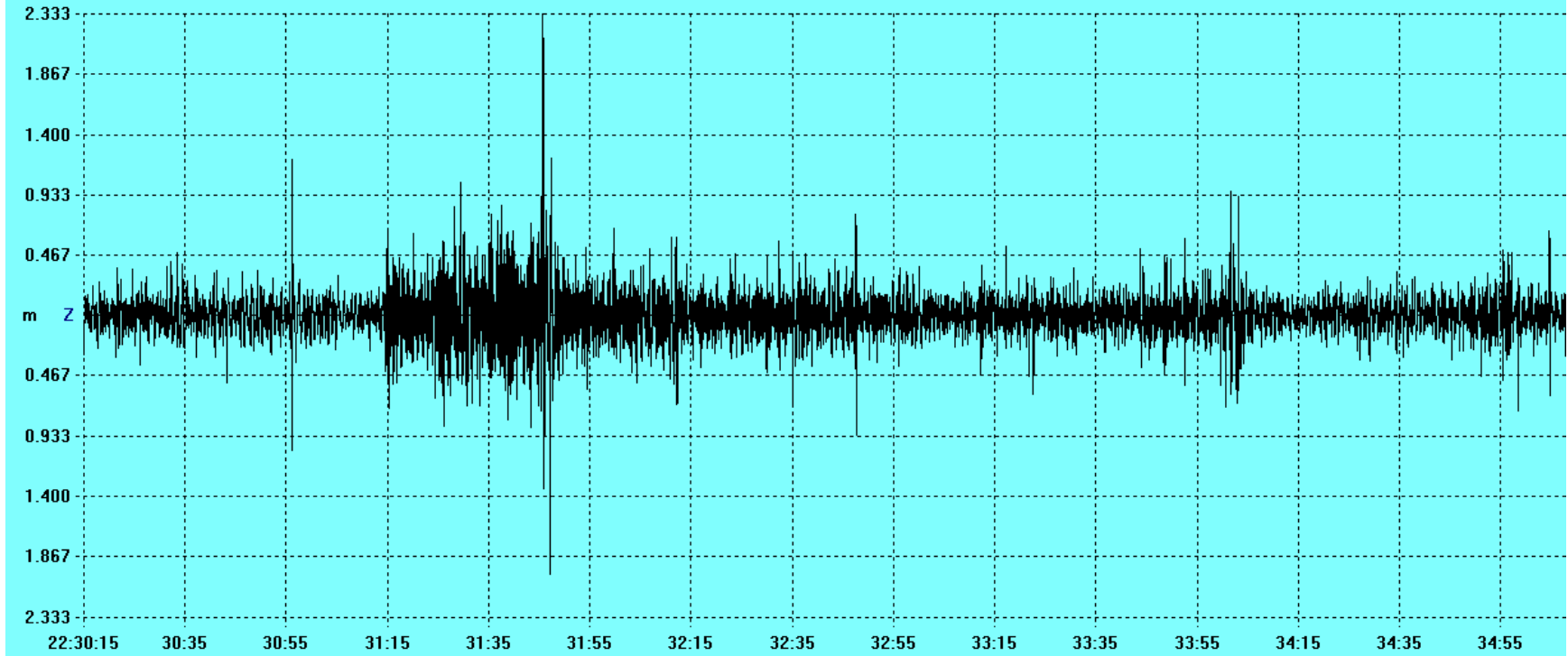
Evento 17

Start: 7/20/11 21:59:59 UTC Station: SAML 8.9489S 63.1831W Samples: 144001 SPS: 40  
X: 2:04.0 Y: 1.16667m Max/Min: 101574/-98192 Peak: 34.59 m/sec View Peak: 719 m/sec  
Org: 22:15:36.4 P: 22:15:51.3 S: 22:16:02.3 Diff: 11.0sec Dist: 0.772deg 85.8km 53.3mi Mag: MI?? JB: 33



Evento 18

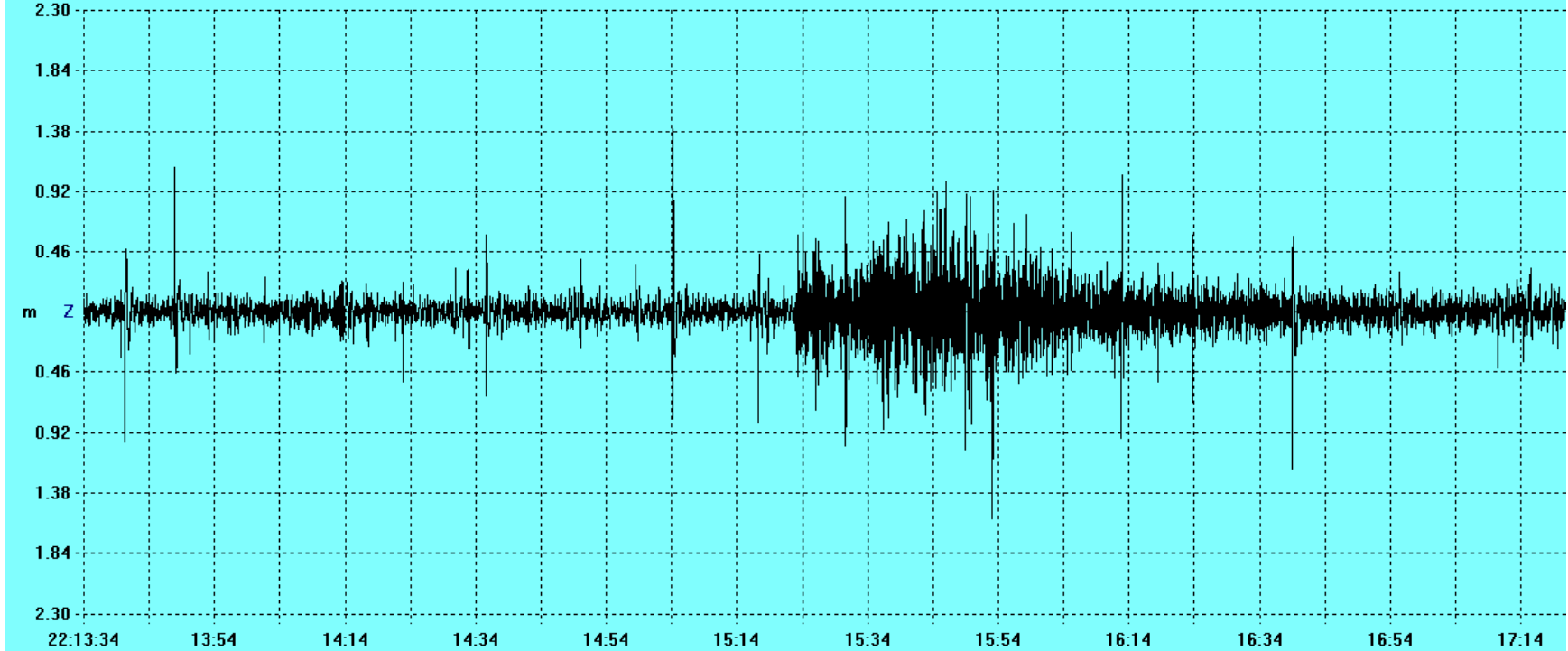
Start: 7/21/11 21:59:59 UTC Station: SAML 8.9489S 63.1831W Samples: 144001 SPS: 40  
X: 4.53.0 Y: 2.33333m Max/Min: 35945/-38827 Peak: 13.22 m/sec View Peak: 2.459 m/sec



Evento 19

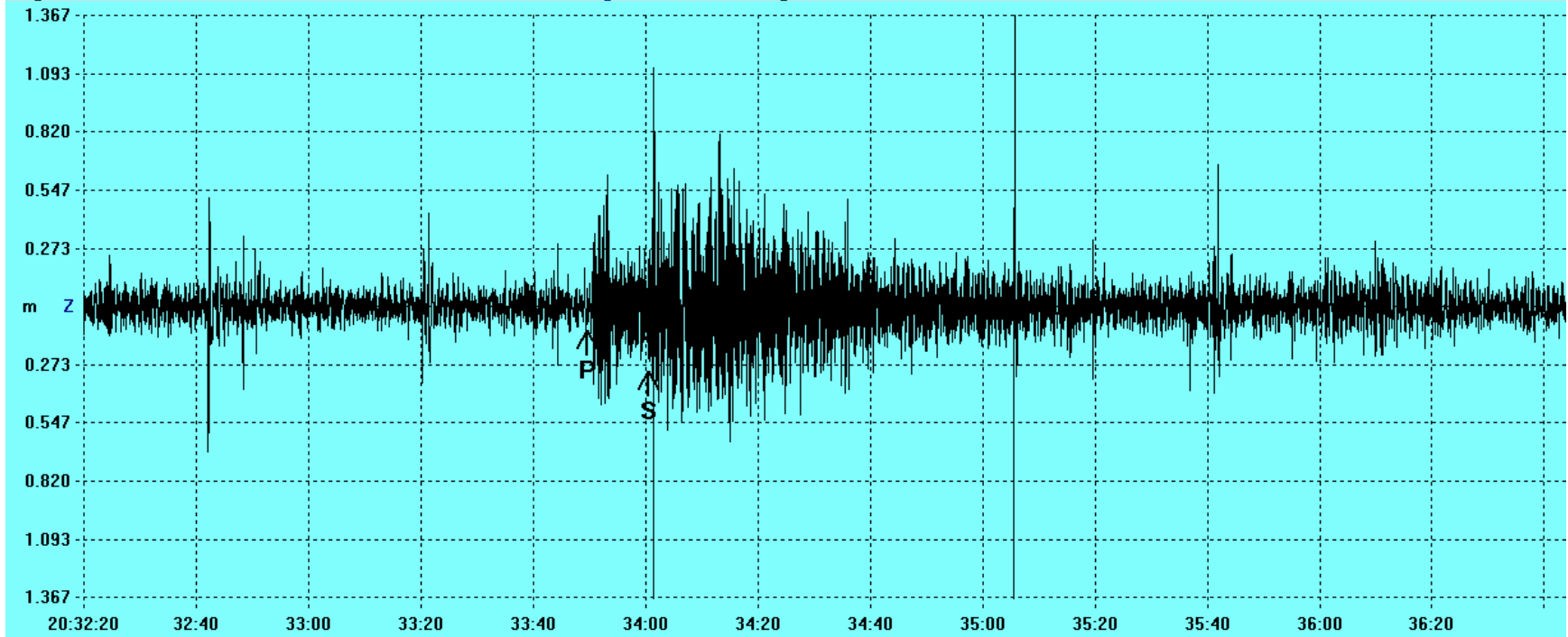


Start: 7/22/11 21:59:59 UTC Station: SAML 8.9489S 63.1831W Samples: 144001 SPS: 40  
X: 3:47.0 Y: 2.3m Max/Min: 32965/-66134 Peak: 22.52 m/sec View Peak: 1.574 m/sec



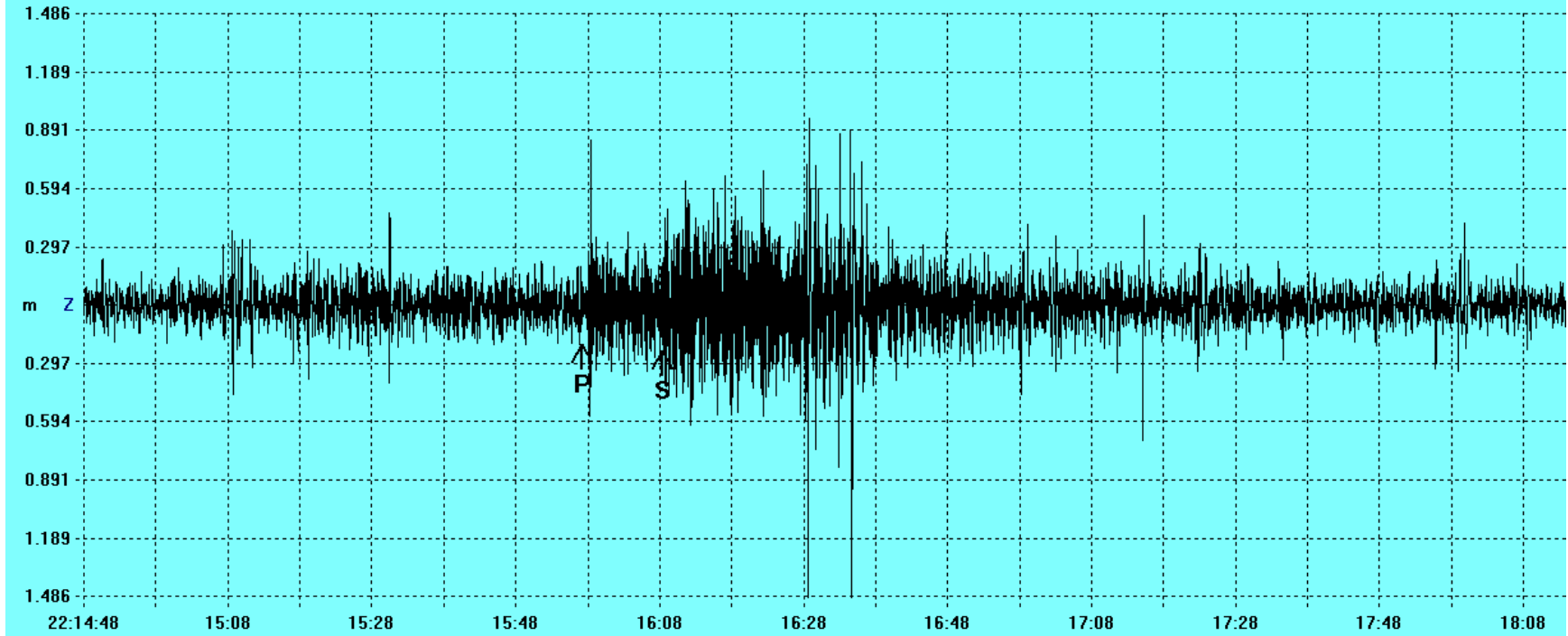
Evento 20

Start: 7/23/11 19:59:59 UTC Station: SAML 8.9489S 63.1831W Samples: 144001 SPS: 40  
X: 4.24.0 Y: 1.36667m Max/Min: 11765/-8488 Peak: 4.006 m/sec View Peak: 2.299 m/sec  
Org: 20:33:34.9 P: 20:33:49.6 S: 20:34:00.5 Diff: 10.9sec Dist: 0.761deg 84.6km 52.6mi Mag: MI?? JB: 33



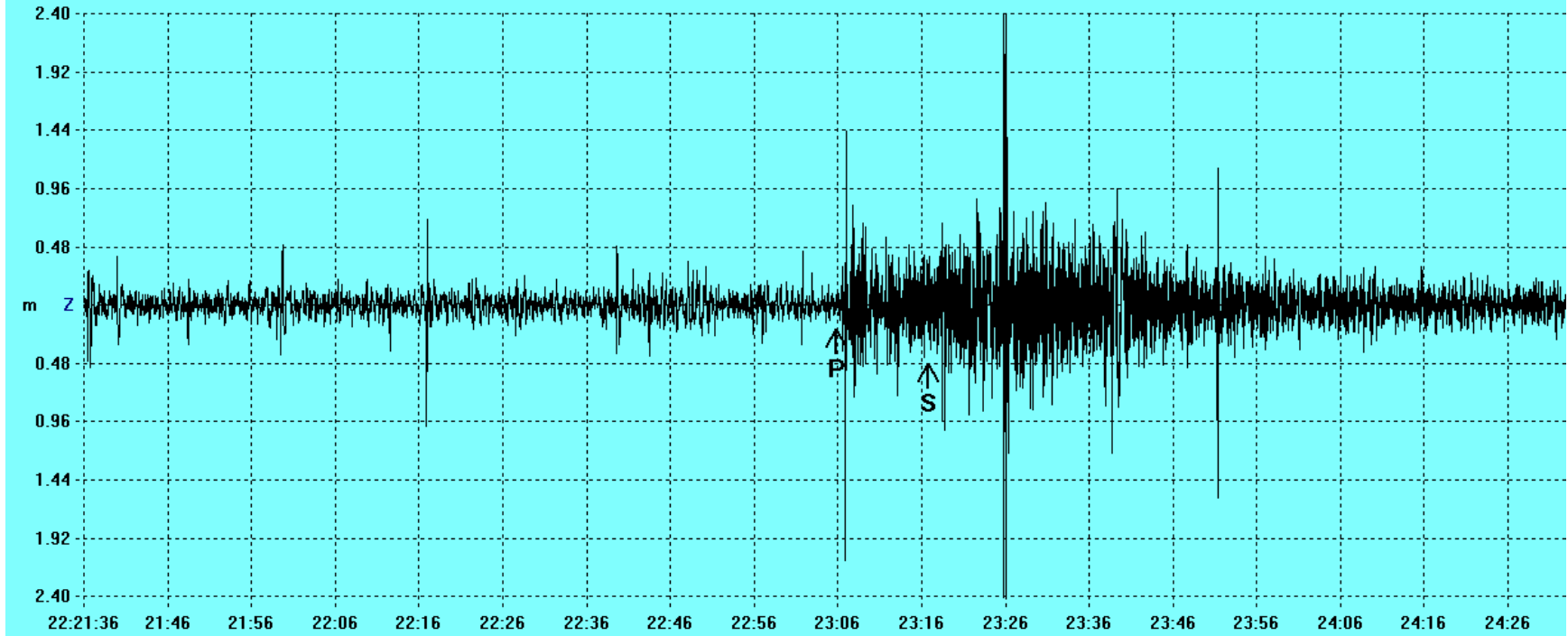
Evento 21

Start: 7/25/11 21:59:59 UTC Station: SAML 8.9489S 63.1831W Samples: 144001 SPS: 40  
X: 3.26.0 Y: 1.48571m Max/Min: 12127/-15100 Peak: 5.142 m/sec View Peak: 1.602 m/sec  
Org: 22:15:42.1 P: 22:15:57.2 S: 22:16:08.4 Diff: 11.2sec Dist: 0.793deg 88.2km 54.8mi Mag: MI?? JB: 33



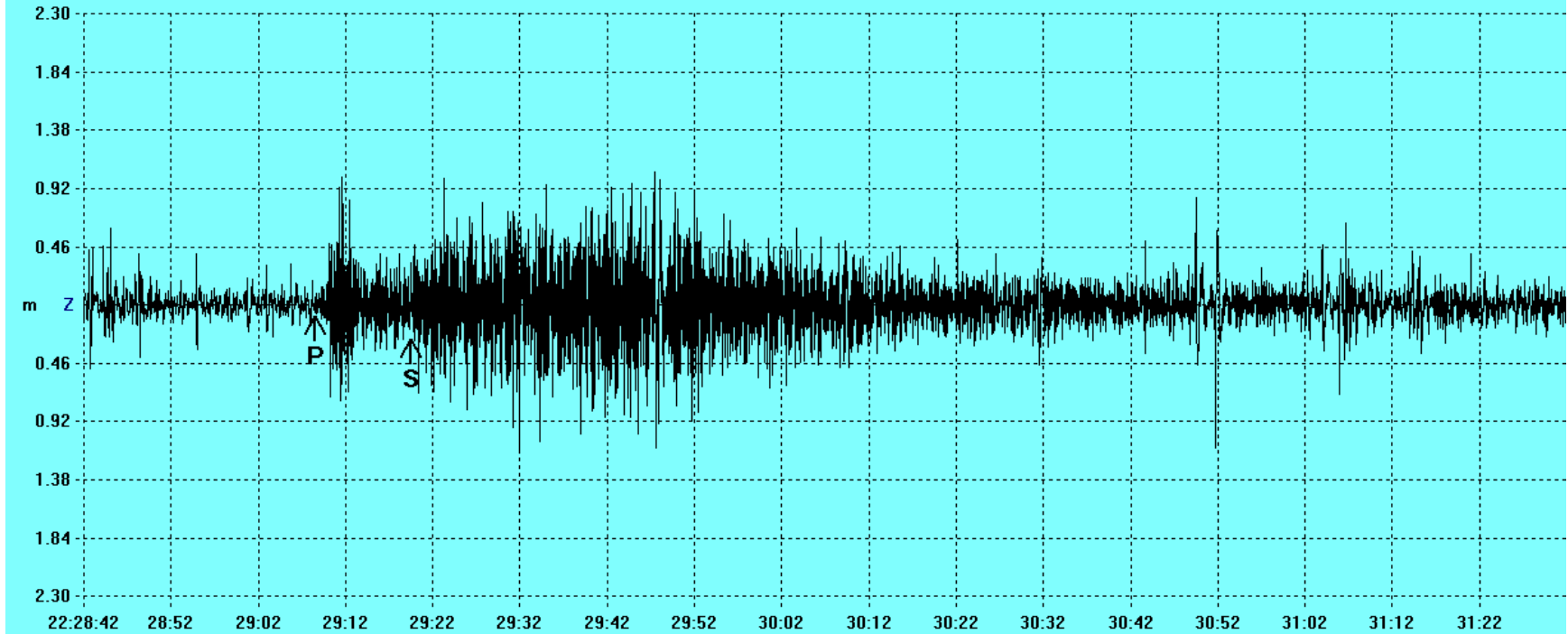
Evento 22

Start: 7/26/11 21:59:59 UTC Station: SAML 8.9489S 63.1831W Samples: 144001 SPS: 40  
X: 2:57.0 Y: 2.4m Max/Min: 32385/-26963 Peak: 11.03 m/sec View Peak: 7.666 m/sec  
Org: 22:22:50.9 P: 22:23:05.8 S: 22:23:16.8 Diff: 11.0sec Dist: 0.772deg 85.8km 53.3mi Mag: MI?? JB: 33



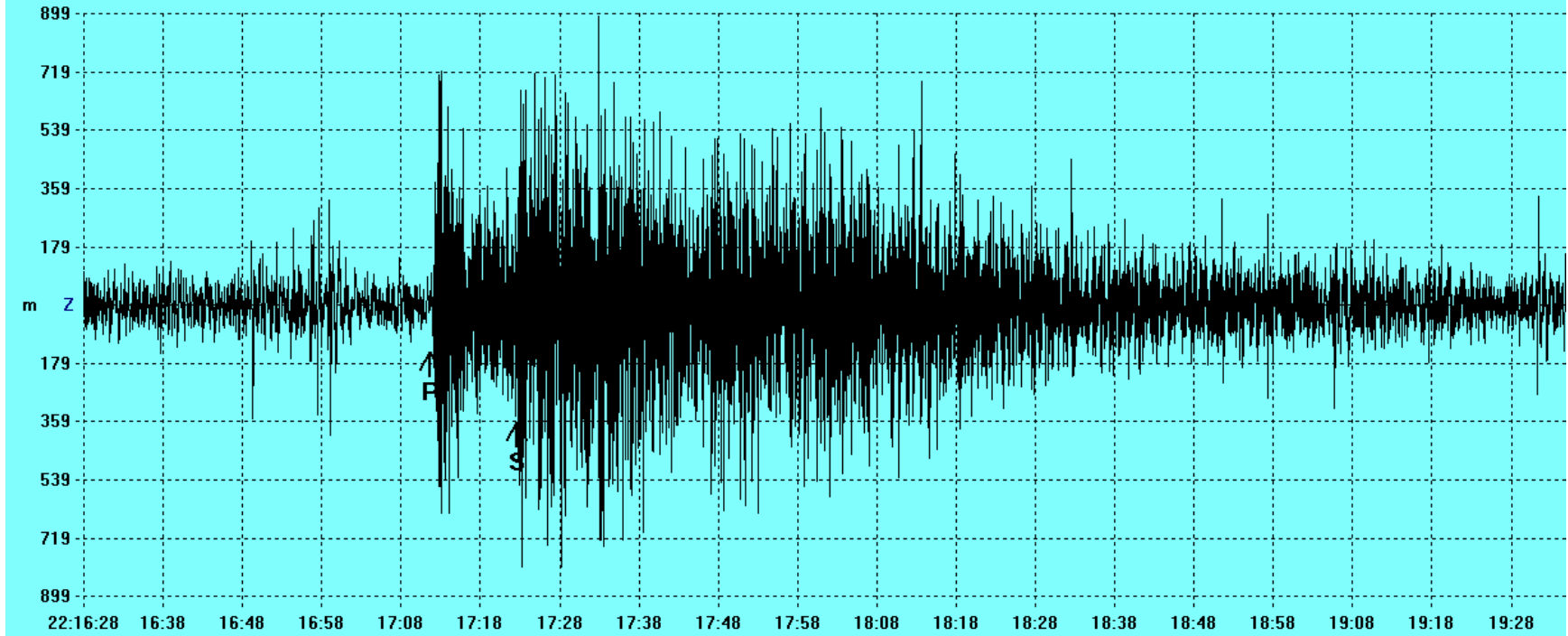
Evento 23

Start: 7/27/11 21:59:59 UTC Station: SAML 8.9489S 63.1831W Samples: 144001 SPS: 40  
X: 2:50.0 Y: 2.3m Max/Min: 6674/-6295 Peak: 2.273 m/sec View Peak: 1.141 m/sec  
Org: 22:28:53.6 P: 22:29:08.5 S: 22:29:19.5 Diff: 11.0sec Dist: 0.772deg 85.8km 53.3mi Mag: MI?? JB: 33



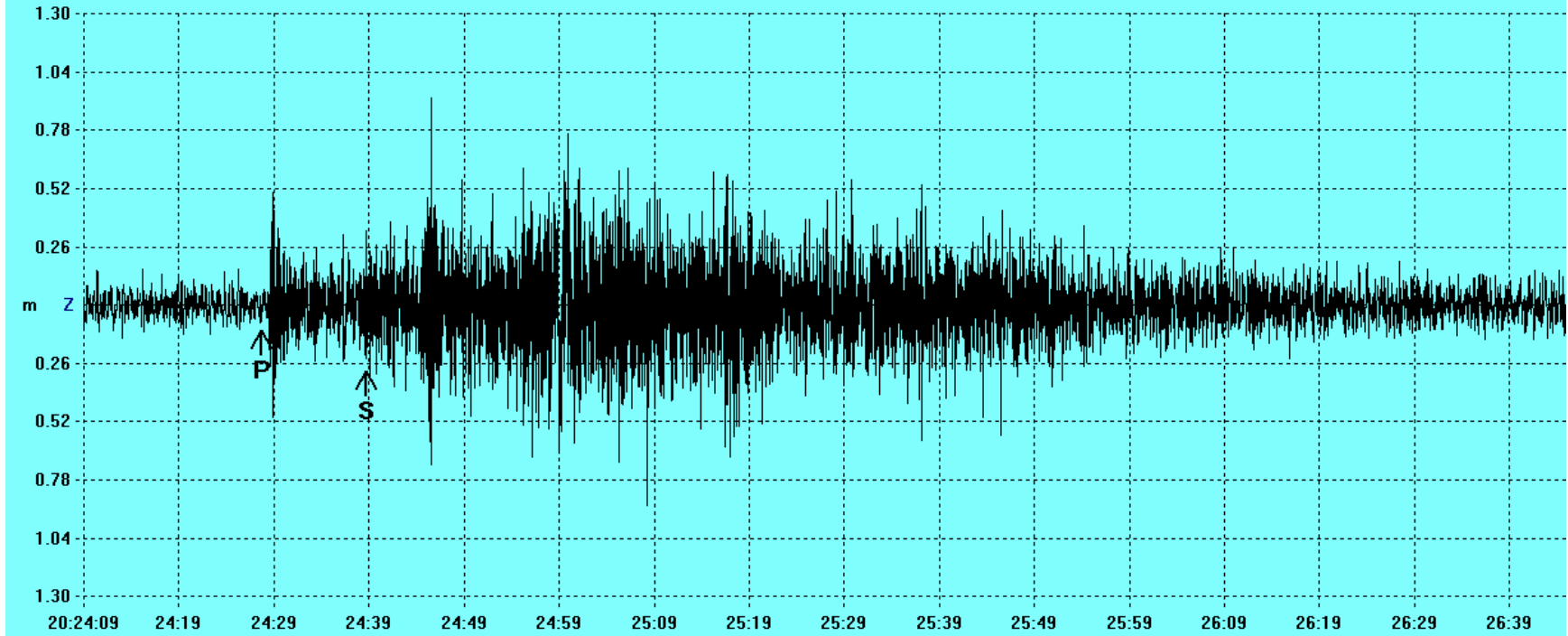
Evento 24

Start: 7/29/11 21:59:59 UTC Station: SAML 8.9489S 63.1831W Samples: 144001 SPS: 40  
X: 3:07.0 Y: 900m Max/Min: 2612/-2376 Peak: 889.6 m/sec View Peak: 889.6 m/sec  
Org: 22:16:56.7 P: 22:17:11.6 S: 22:17:22.6 Diff: 11.0sec Dist: 0.772deg 85.8km 53.3mi Mag: MI?? JB: 33



Evento 25

Start: 7/30/11 19:59:59 UTC Station: SAML 8.9489S 63.1831W Samples: 144001 SPS: 40  
X: 2:36.0 Y: 1.3m Max/Min: 3771/-2630 Peak: 1.284 m/sec View Peak: 919.3 m/sec  
Org: 20:24:12.8 P: 20:24:27.7 S: 20:24:38.7 Diff: 11.0sec Dist: 0.772deg 85.8km 53.3mi Mag: MI?? JB: 33



Evento 26

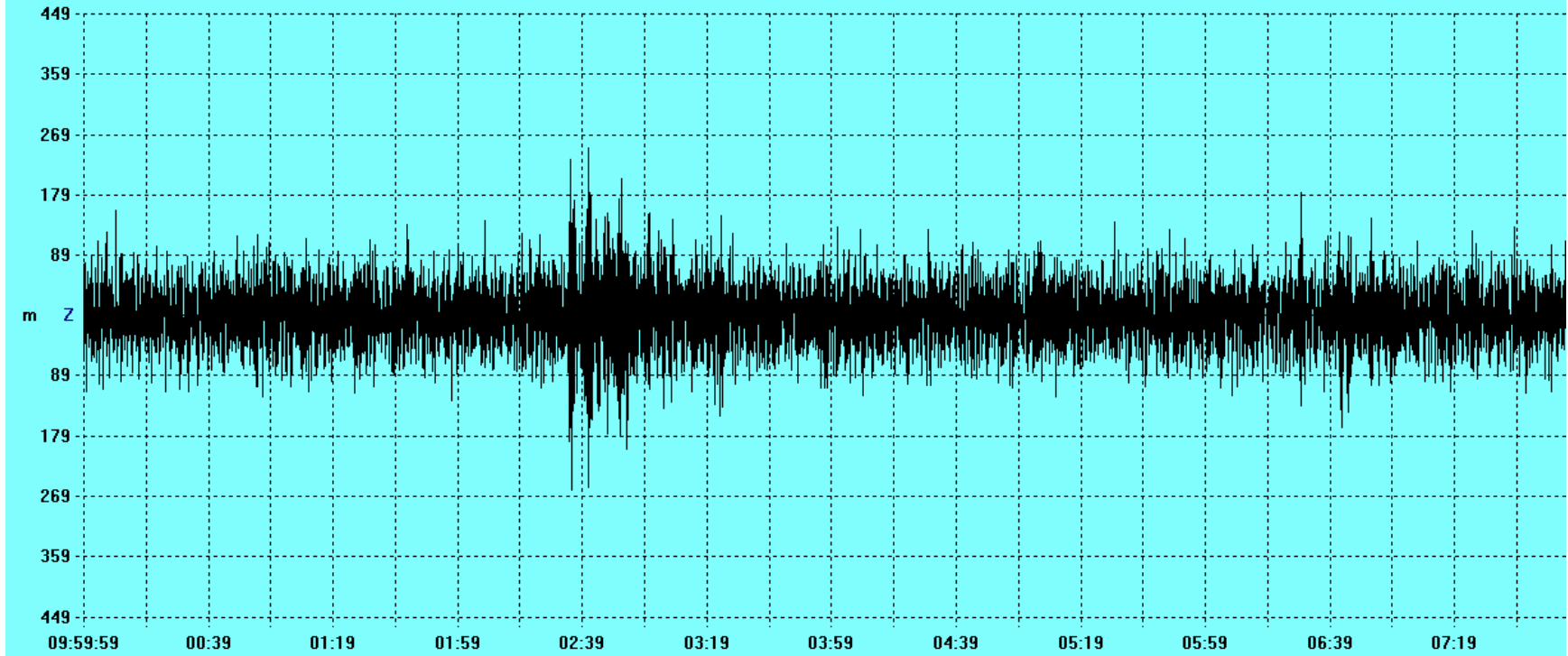
**Detonações Realizadas na Margem  
Direita do Canteiro de Obras da UHE  
Santo Antônio**

**Julho  
2011**

**Registros da Estação Sismológica de  
Samuel (SAML)**

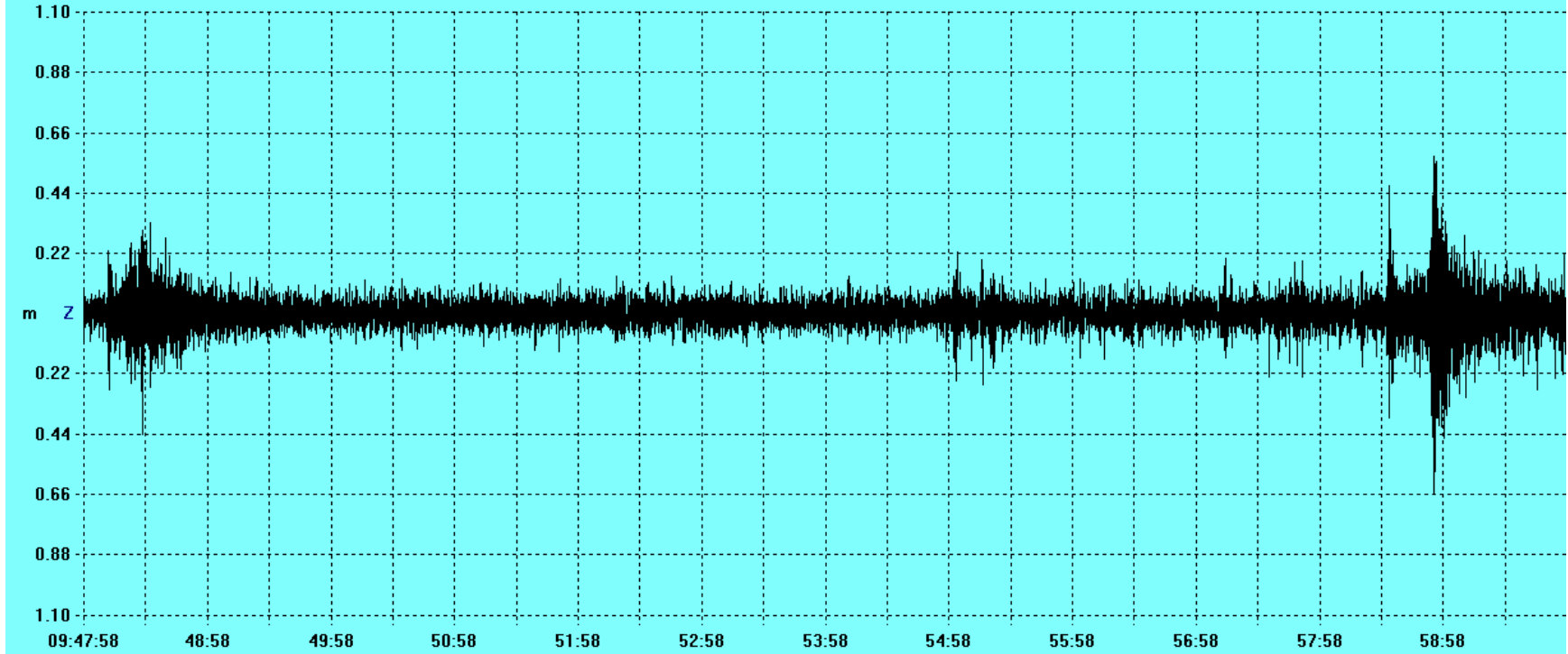


Start: 7/02/11 9:59:59 UTC Station: SAML 8.9489S 63.1831W Samples: 144001 SPS: 40  
X: 7:56.0 Y: 450m Max/Min: 730.6/-861.3 Peak: 293.3 m/sec View Peak: 261 m/sec



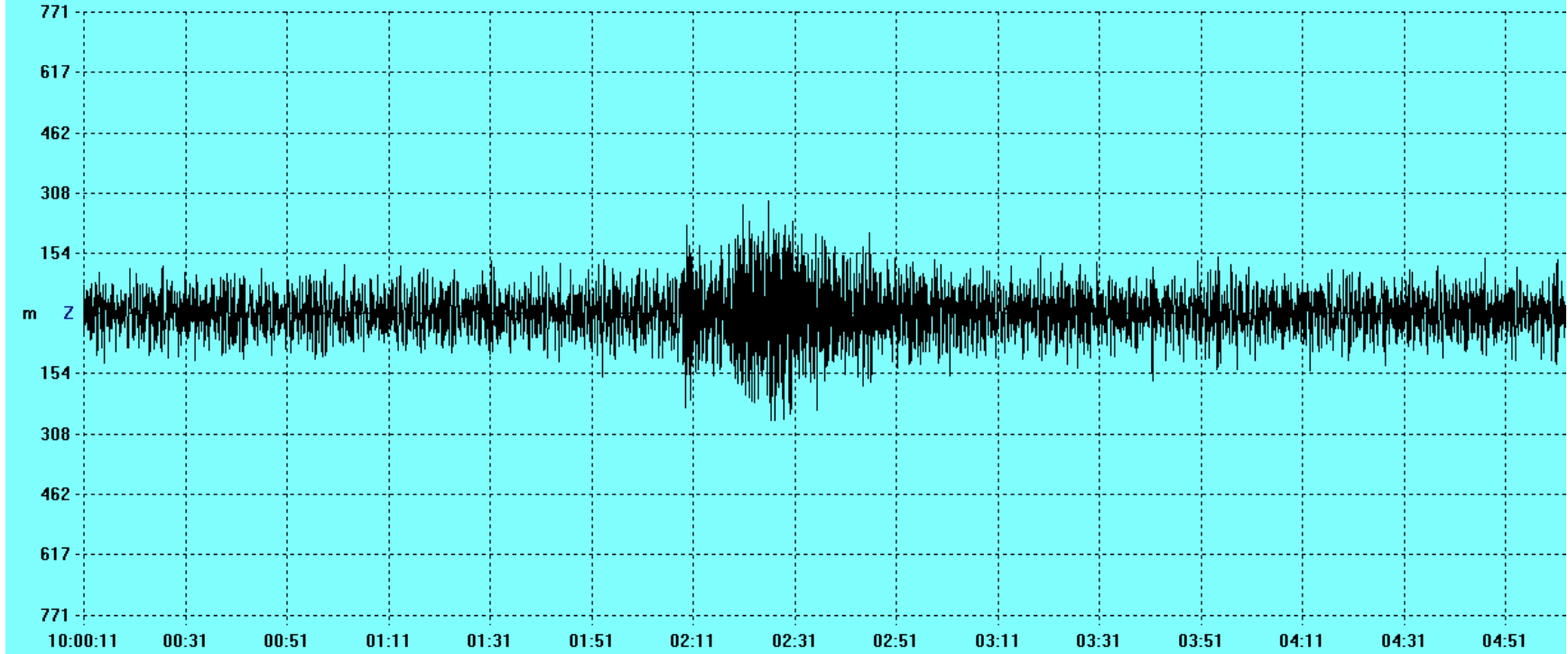
Evento 27

Start: 7/03/11 8:59:59 UTC Station: SAML 8.9489S 63.1831W Samples: 144001 SPS: 40  
X: 12:00.0 Y: 1.1m Max/Min: 2750/-3010 Peak: 1.025 m/sec View Peak: 660.7 m/sec



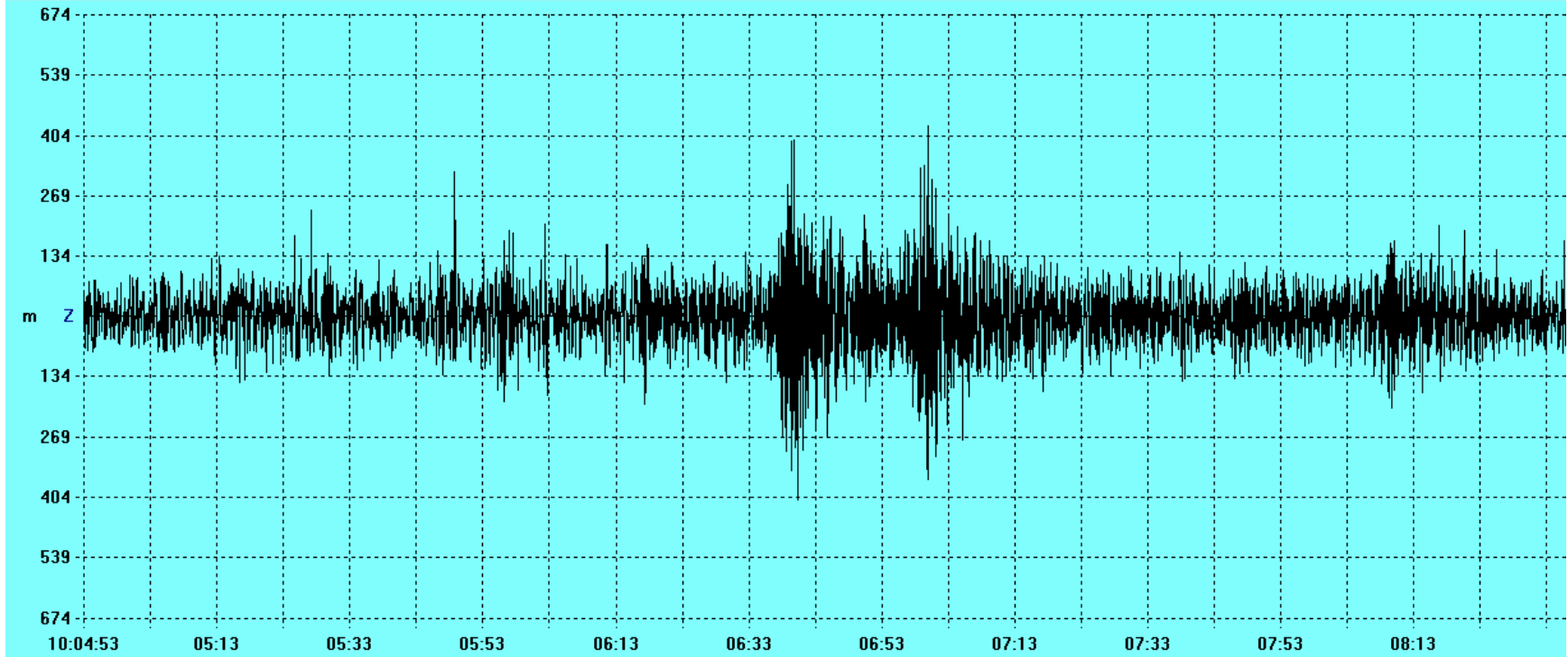
Evento 28

Start: 7/05/11 9:59:59 UTC Station: SAML 8.9489S 63.1831W Samples: 144001 SPS: 40  
X: 4:52.0 Y: 771.429m Max/Min: 15658/-11639 Peak: 5.332 m/sec View Peak: 288 m/sec



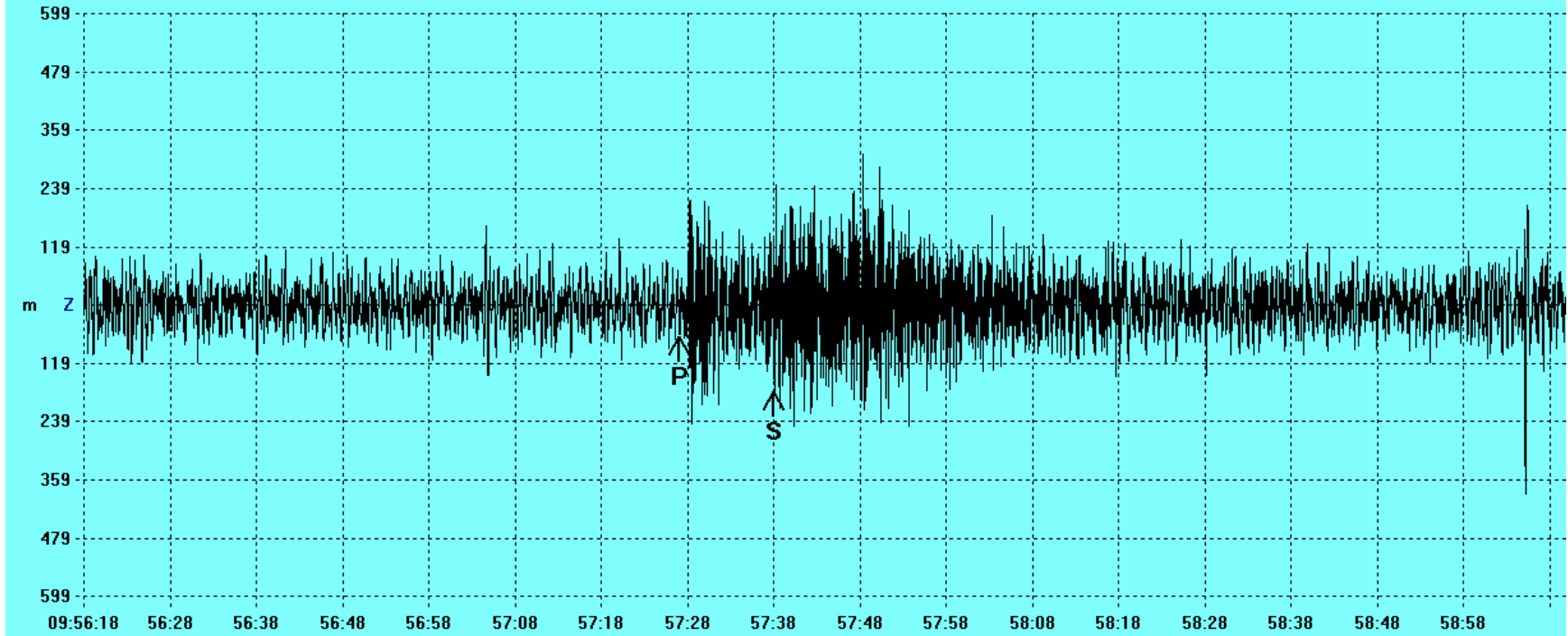
Evento 29

Start: 7/06/11 9:59:59 UTC Station: SAML 8.9489S 63.1831W Samples: 144001 SPS: 40  
X: 3:43.0 Y: 675m Max/Min: 1452/-1935 Peak: 658.9 m/sec View Peak: 426.6 m/sec



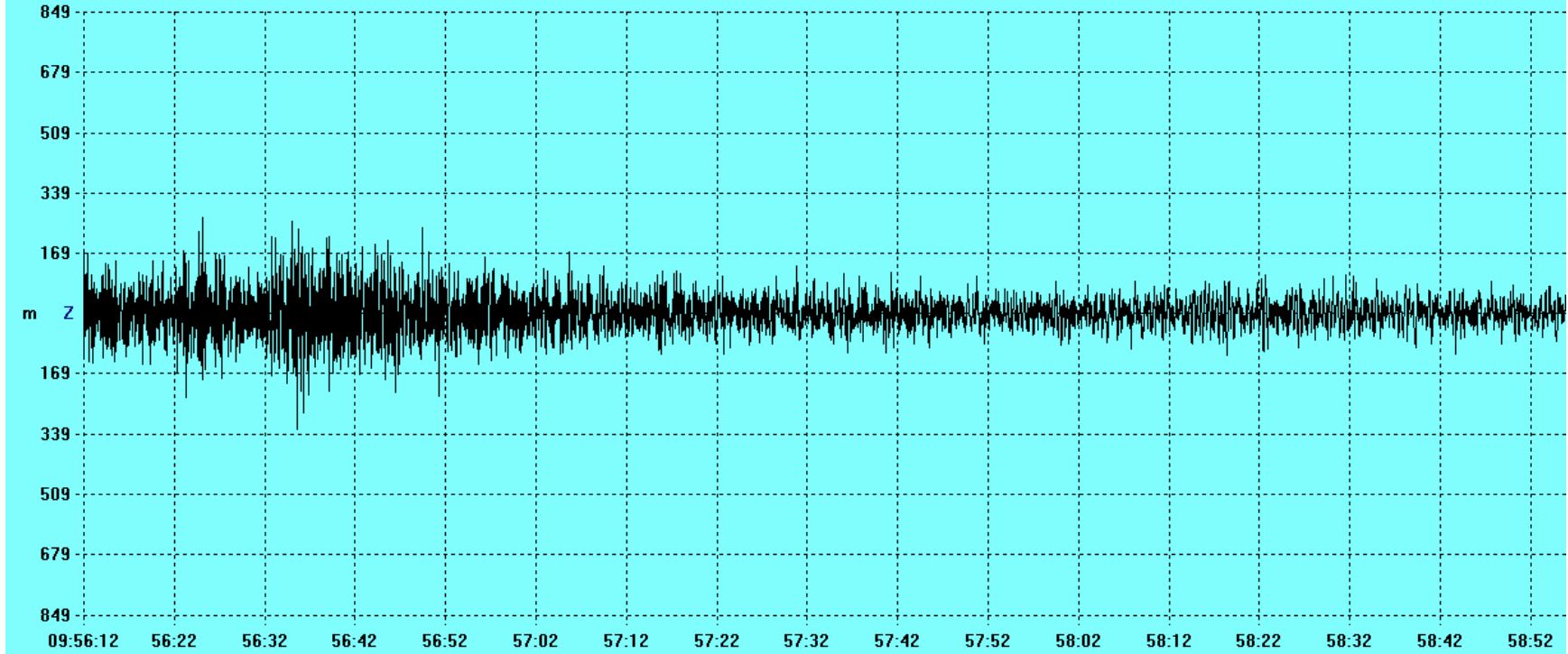
Evento 30

Start: 7/08/11 8:59:59 UTC Station: SAML 8.9489S 63.1831W Samples: 144001 SPS: 40  
X: 2:52.0 Y: 600m Max/Min: 1316/-1754 Peak: 597.4 m/sec View Peak: 389.8 m/sec  
Org: 9:57:12.1 P: 9:57:27.0 S: 9:57:38.0 Diff: 11.0sec Dist: 0.772deg 85.8km 53.3mi Mag: MI?? JB: 33



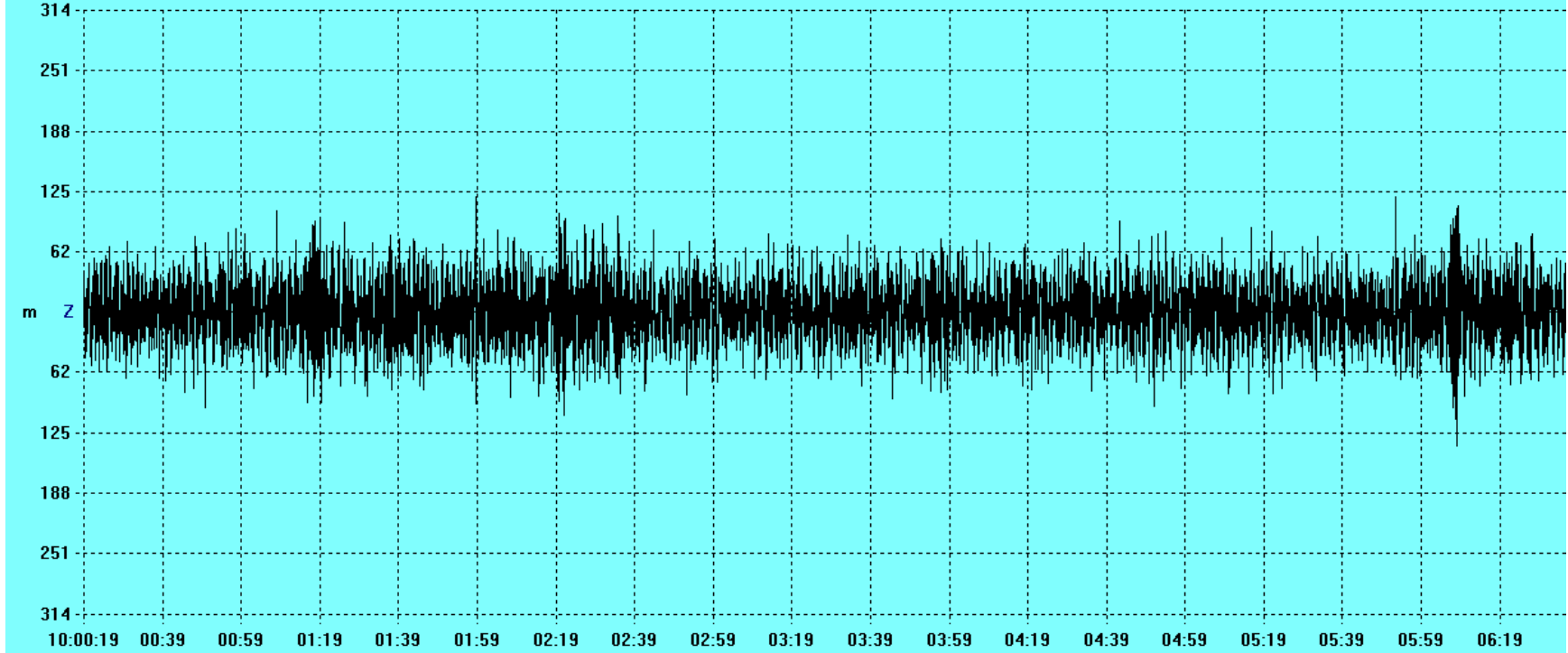
Evento 31

Start: 7/09/11 8:59:59 UTC Station: SAML 8.9489S 63.1831W Samples: 144001 SPS: 40  
X: 2:44.0 Y: 850m Max/Min: 2329/-2433 Peak: 828.4 m/sec View Peak: 328.7 m/sec



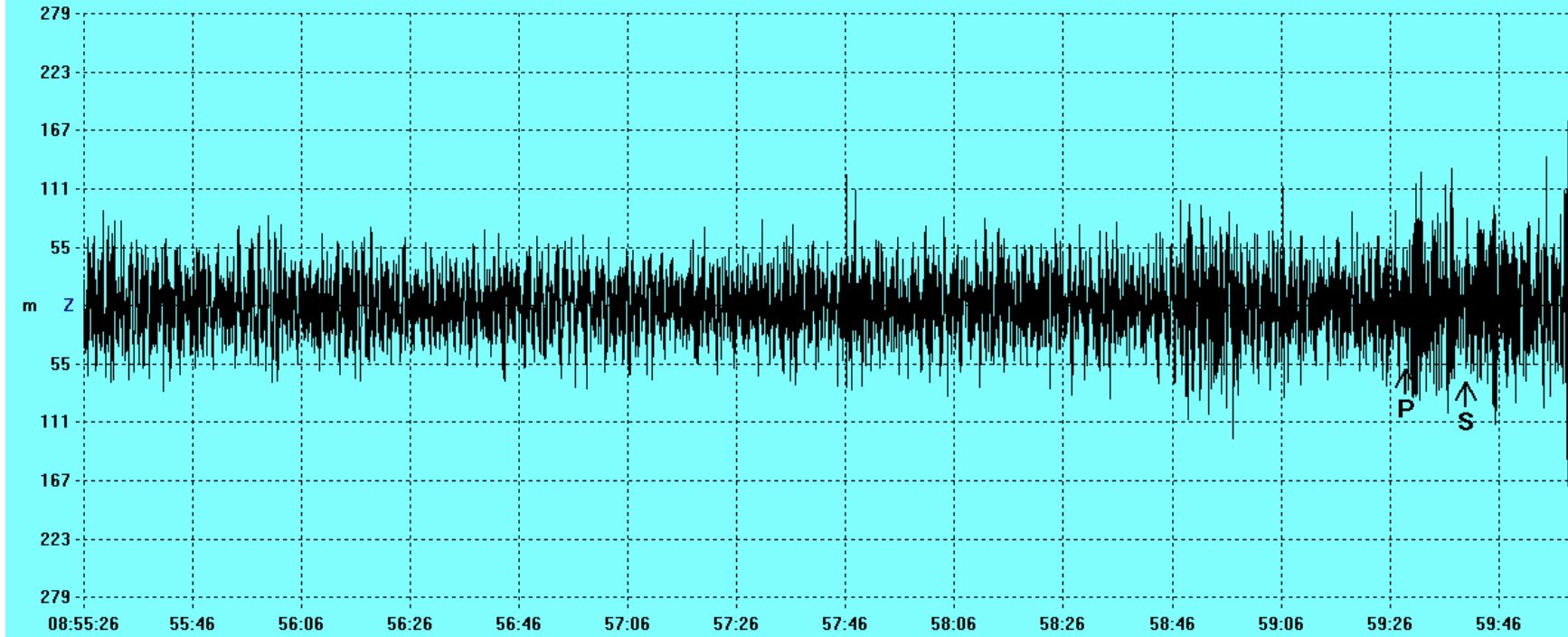
Evento 32

Start: 7/10/11 9:59:59 UTC Station: SAML 8.9489S 63.1831W Samples: 144001 SPS: 40  
X: 6:17.0 Y: 314.286m Max/Min: 3224/-3165 Peak: 1.098 m/sec View Peak: 139.4 m/sec



Evento 33 – amplitude muito baixa.

Start: 7/12/11 7:59:59 UTC Station: SAML 8.9489S 63.1831W Samples: 144001 SPS: 40  
X: 4.33.0 Y: 280m Max/Min: 791.8/-800.7 Peak: 272.6 m/sec View Peak: 176.8 m/sec  
Org: 8:59:13.9 P: 8:59:28.9 S: 8:59:40.0 Diff: 11.1sec Dist: 0.783deg 87.0km 54.1mi Mag: MI?? JB: 33

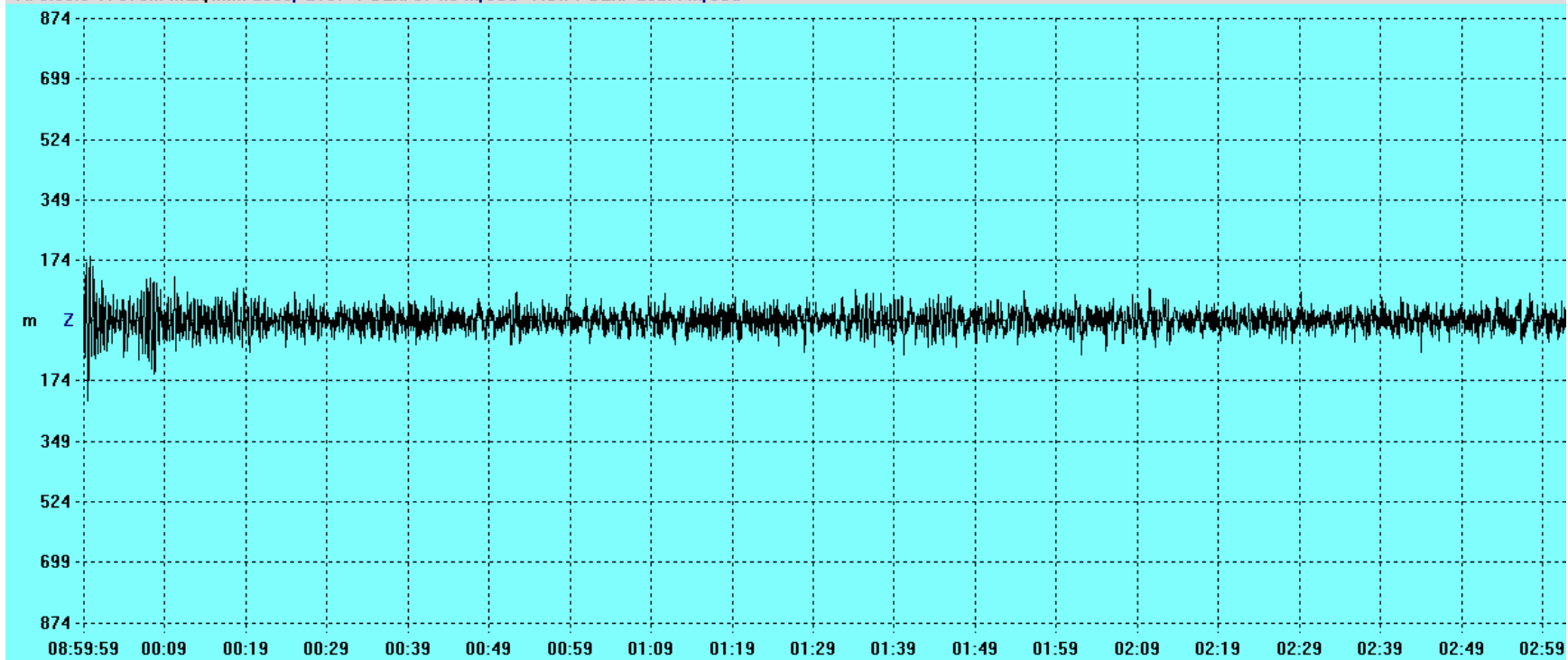


Evento 34



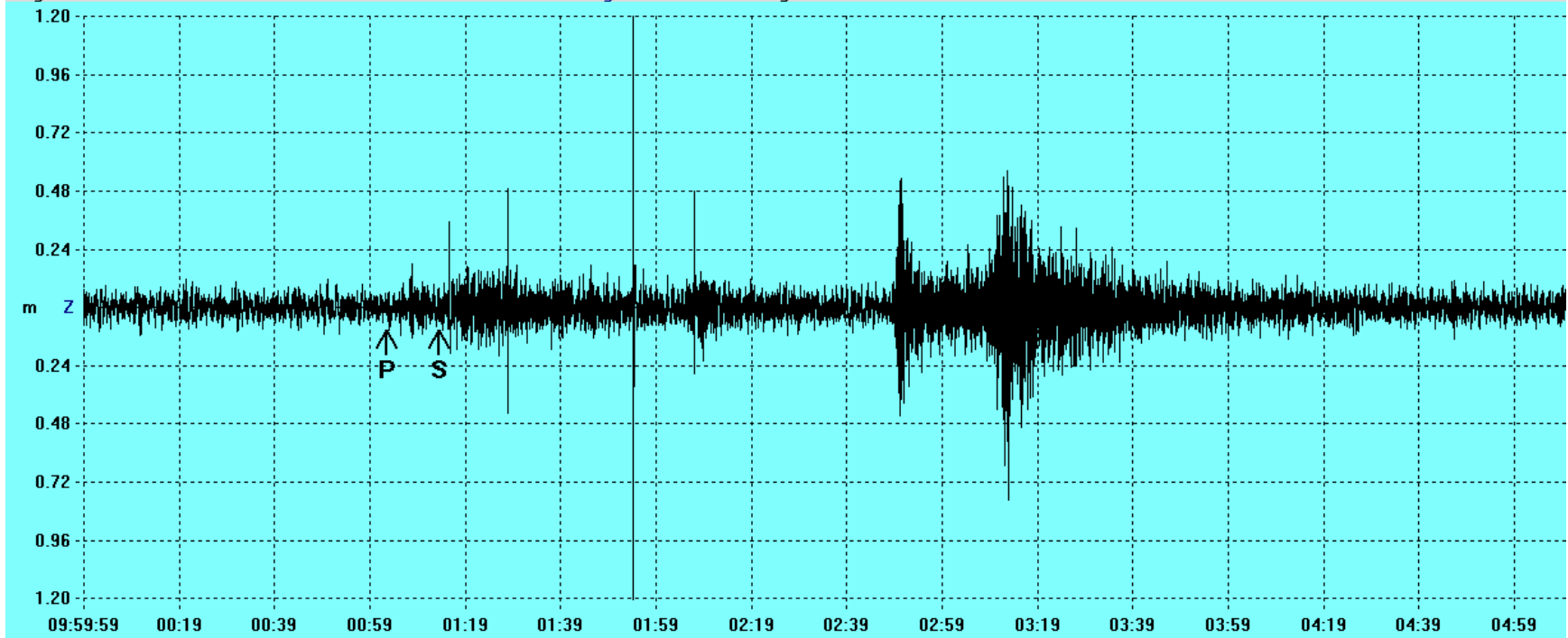
Continuação do registo acima:

Start: 7/12/11 8:59:59 UTC Station: SAML 8.9489S 63.1831W Samples: 144001 SPS: 40  
X: 3:03.0 Y: 875m Max/Min: 2568/-2187 Peak: 874.6 m/sec View Peak: 232.4 m/sec



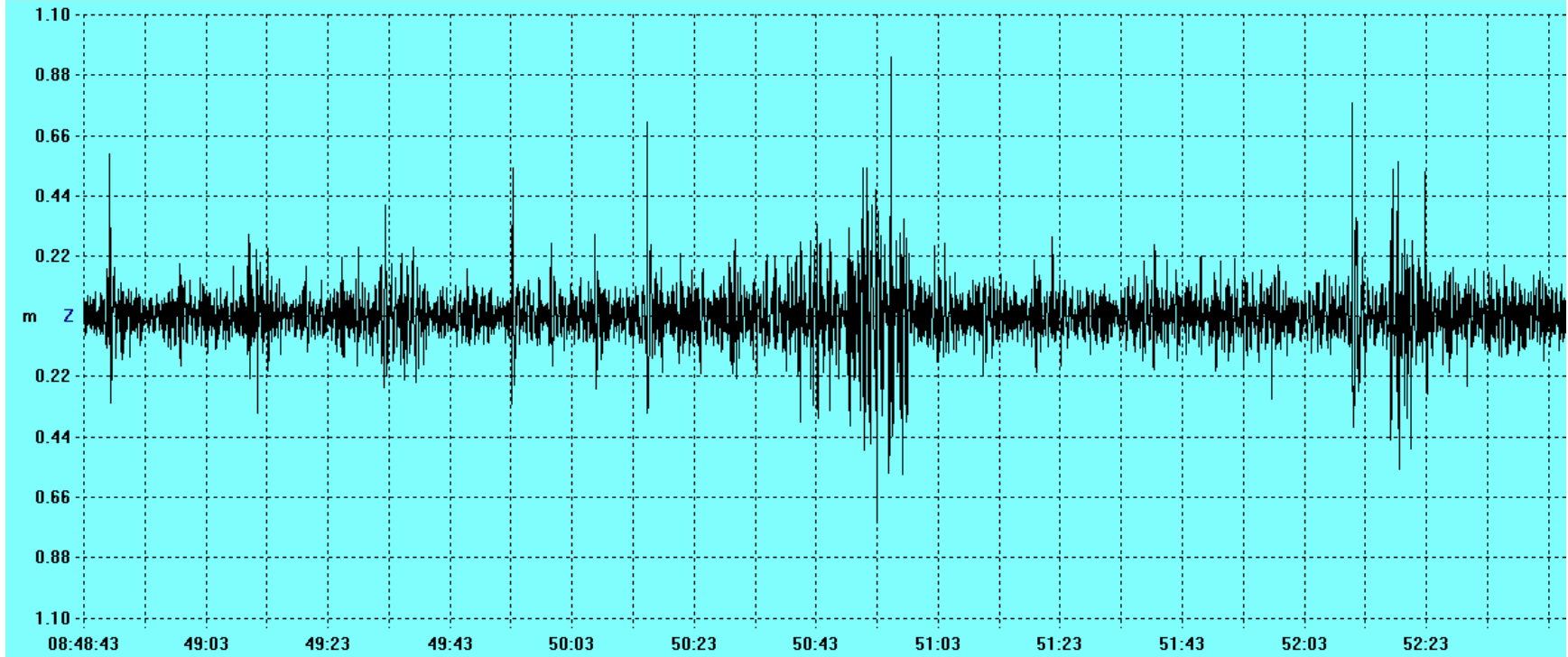
Evento 34

Start: 7/13/11 9:59:59 UTC Station: SAML 8.9489S 63.1831W Samples: 144001 SPS: 40  
X: 5:11.0 Y: 1.2m Max/Min: 8968/-10353 Peak: 3.525 m/sec View Peak: 1.769 m/sec  
Org: 10:00:47.6 P: 10:01:02.5 S: 10:01:13.5 Diff: 11.0sec Dist: 0.772deg 85.8km 53.3mi Mag: MI?? JB: 33



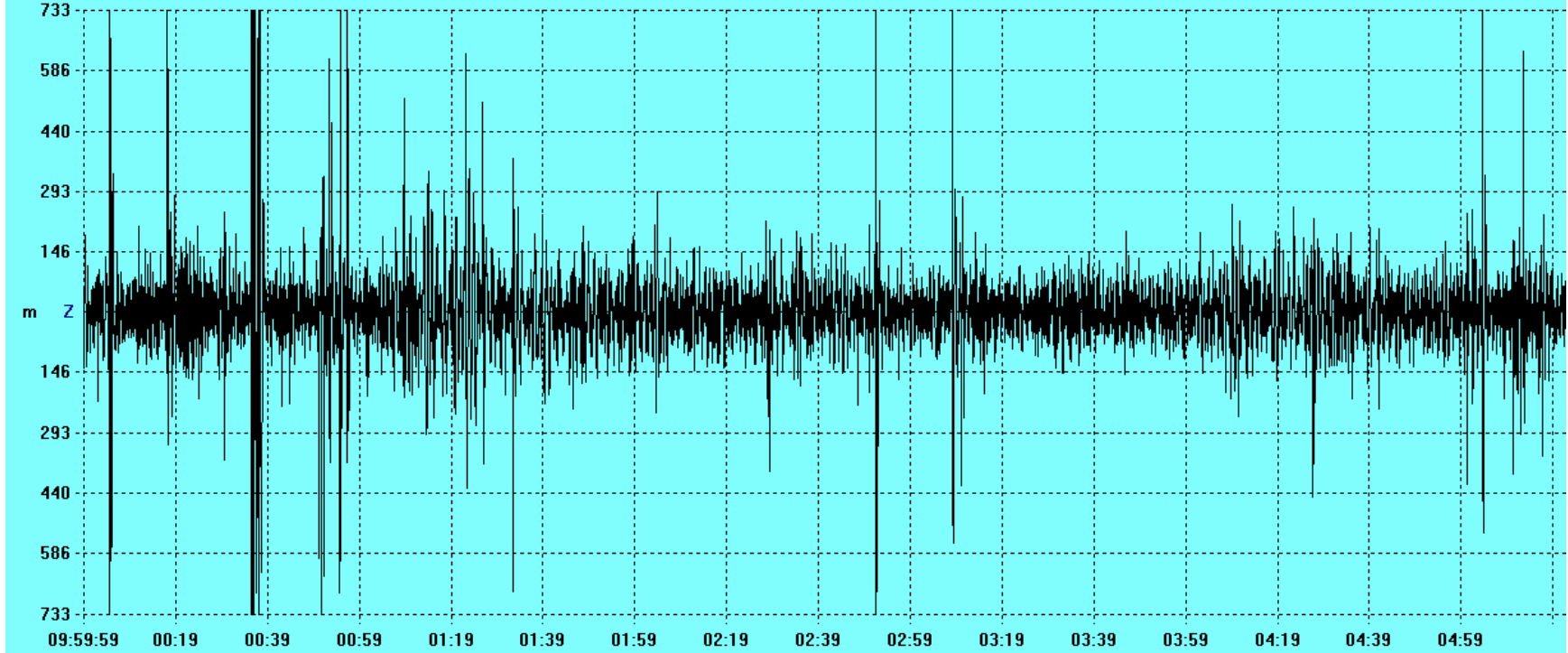
Evento 35

Start: 7/15/11 7:59:59 UTC Station: SAML 8.9489S 63.1831W Samples: 144001 SPS: 40  
X: 4.03.0 Y: 1.1m Max/Min: 3202/-3174 Peak: 1.09 m/sec View Peak: 945.7 m/sec



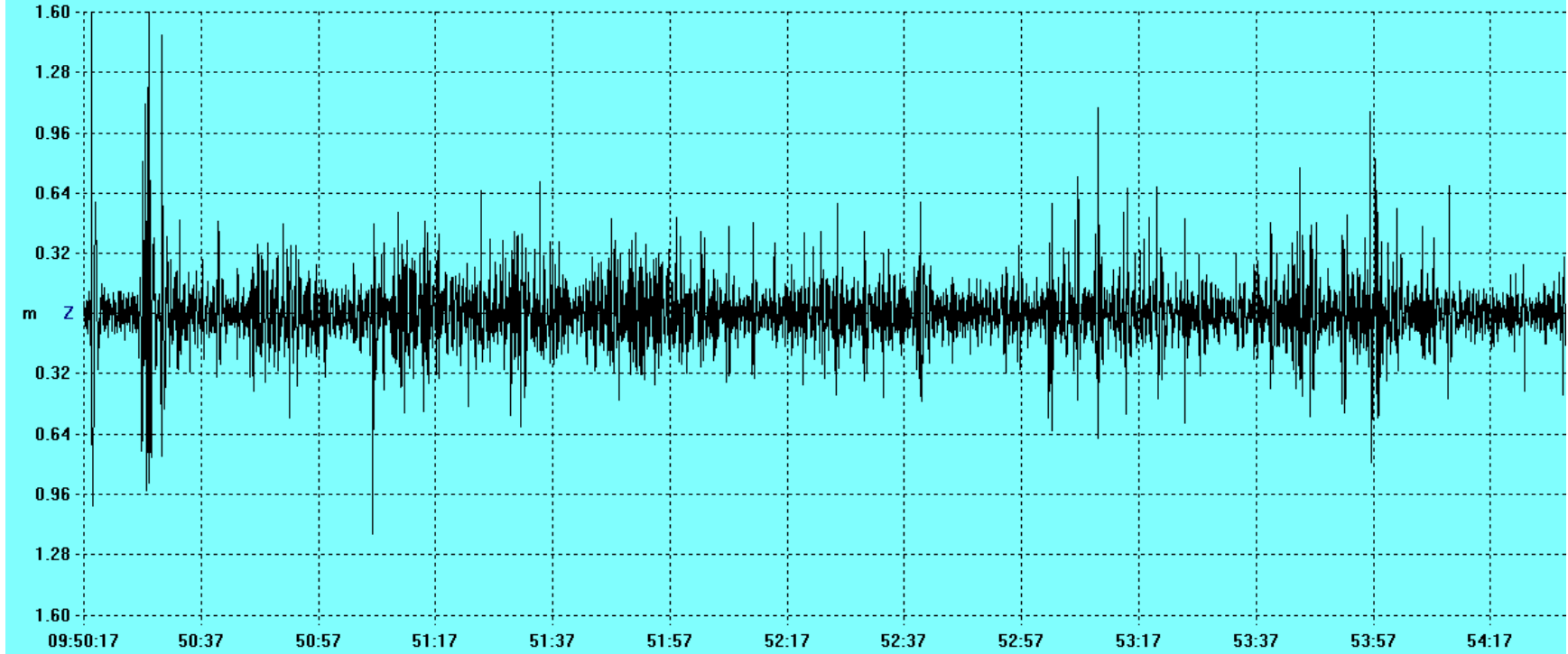
Evento 36

Start: 7/17/11 9:59:59 UTC Station: SAML 8.9489S 63.1831W Samples: 144001 SPS: 40  
X: 5:23.0 Y: 733.333m Max/Min: 29639/-16963 Peak: 10.09 m/sec View Peak: 3.343 m/sec



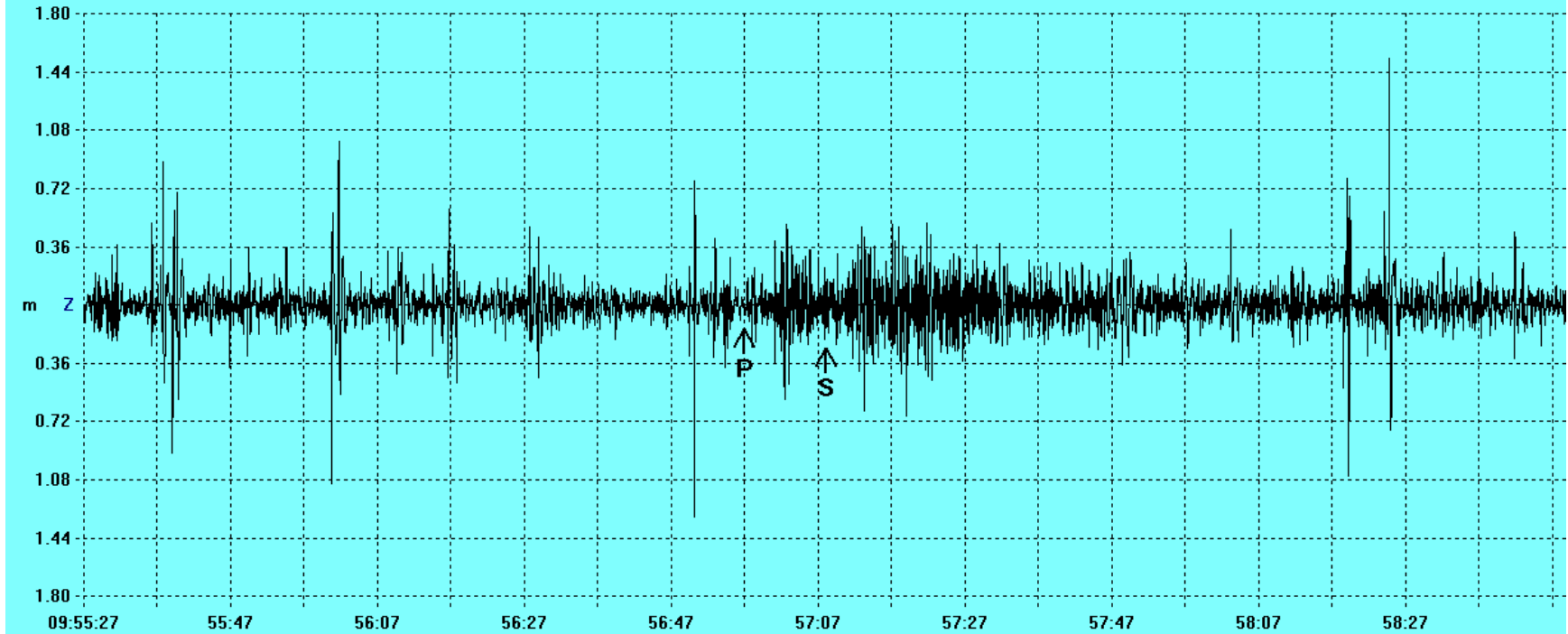
Evento 37

Start: 7/20/11 8:59:59 UTC Station: SAML 8.9489S 63.1831W Samples: 144001 SPS: 40  
X: 4:13.0 Y: 1.6m Max/Min: 68443/-67729 Peak: 23.3 m/sec View Peak: 2.29 m/sec



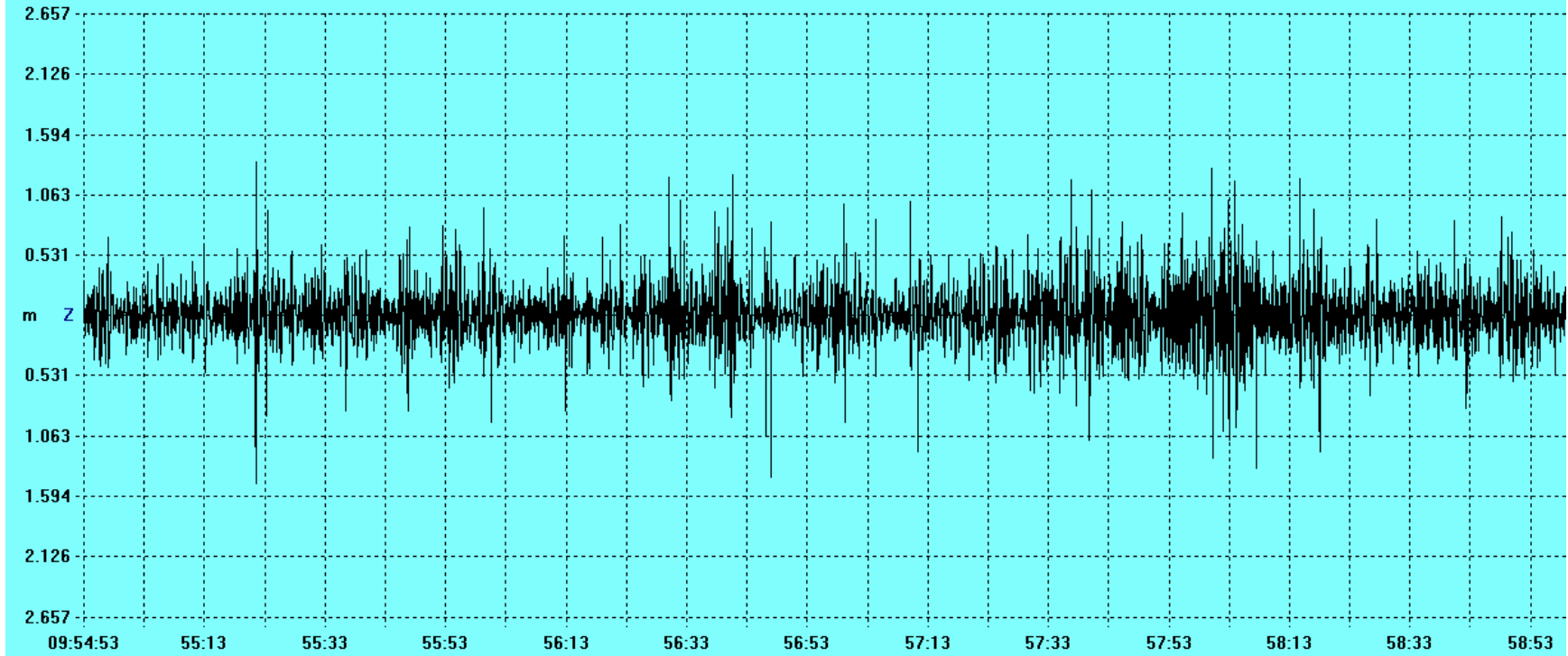
Evento 38

Start: 7/21/11 8:59:59 UTC Station: SAML 8.9489S 63.1831W Samples: 144001 SPS: 40  
X: 3:22.0 Y: 1.8m Max/Min: 32782/-51167 Peak: 17.42 m/sec View Peak: 1.521 m/sec  
Org: 9:56:42.0 P: 9:56:57.0 S: 9:57:08.1 Diff: 11.1sec Dist: 0.783deg 87.0km 54.1mi Mag: MI?? JB: 33



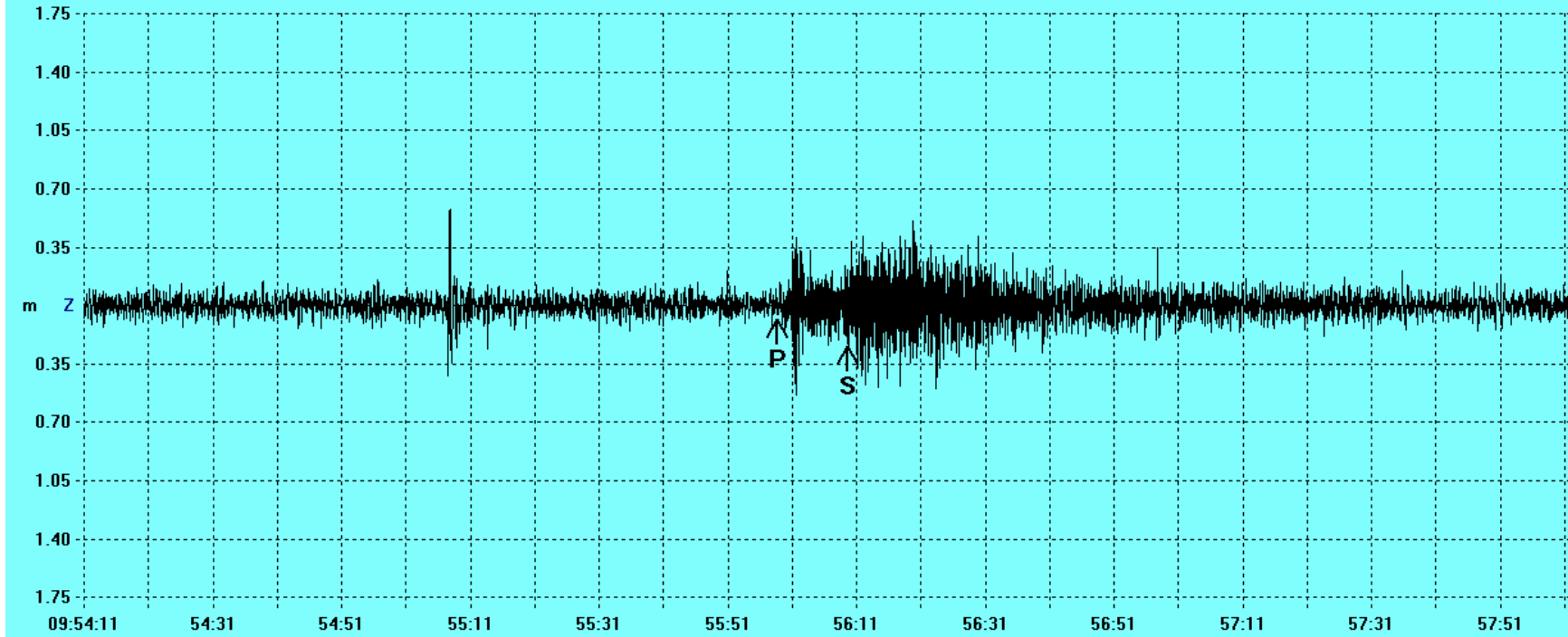
Evento 39

Start: 7/22/11 8:59:59 UTC Station: SAML 8.9489S 63.1831W Samples: 144001 SPS: 40  
X: 4.06.0 Y: 2.65714m Max/Min: 26475/-27108 Peak: 9.23 m/sec View Peak: 1.488 m/sec



Evento 40

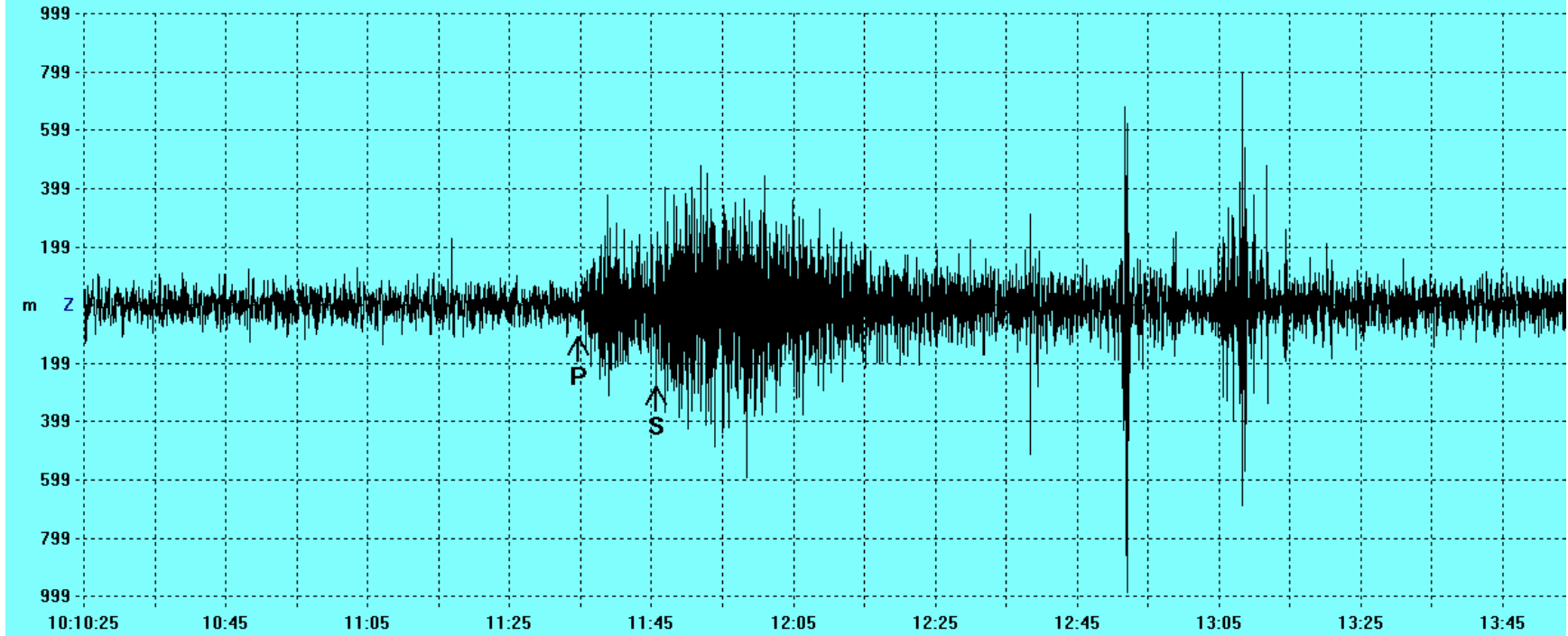
Start: 7/24/11 8:59:59 UTC Station: SAML 8.9489S 63.1831W Samples: 144001 SPS: 40  
X: 3:51.0 Y: 1.75m Max/Min: 10267/-6193 Peak: 3.496 m/sec View Peak: 575.9 m/sec  
Org: 9:55:43.7 P: 9:55:58.6 S: 9:56:09.6 Diff: 11.0sec Dist: 0.772deg 85.8km 53.3mi Mag: MI?? JB: 33



Evento 41



Start: 7/30/11 9:59:59 UTC Station: SAML 8.9489S 63.1831W Samples: 144001 SPS: 40  
X: 3:29.0 Y: 1000m Max/Min: 2334/-2888 Peak: 983.4 m/sec View Peak: 983.4 m/sec  
Org: 10:11:20.0 P: 10:11:34.7 S: 10:11:45.6 Diff: 10.9sec Dist: 0.761deg 84.6km 52.6mi Mag: MI?? JB: 33



Evento 43