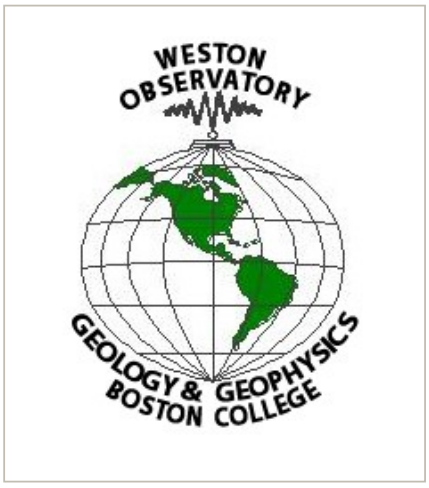
A STUDY OF NEW ENGLAND SEISMICITY

Quarterly Earthquake Report

April-June, 2005

New England

Seismic Network



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NEW ENGLAND SEISMIC NETWORK

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for

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Notice

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Introduction

The New England Seismic Network (NESN) is operated by the Weston Observatory (WES) of Boston College. The mission of the NESN is to operate and maintain a regional seismic network with digital recording of seismic ground motions for the following purposes: 1) to determine the location and magnitude of earthquakes in and adjacent to New England and report felt events to public safety agencies, 2) to define the crust and upper mantle structure ofthe northeastern United

States, 3) to derive the source parameters of New England earthquakes, and 4) to estimate the seismic hazard in the area.

This report summarizes the work of the NESN for the period April-June, 2005. It includes a brief summary of the network's equipment and operation, and a short discussion of data management procedures. A list of participating personnel is given in Table 1. There were 10 earthquakes that occurred within or near the network during this reporting period. Phase information for these earthquakes is included in this report.

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Current Network Operation and Status

The New England Seismic Network of Weston Observatory of Boston College currently consists of 12 broadband three-component and 8 analog strong-motion stations. The coordinates of the stations are given in Table 2, and maps of the weak- and strong-motion networks are shown in Figures 1 and 2, respectively. The 12 stations consist of Guralp CMG-40T three-component sensors. Ground motions recorded by these sensors are digitized at 100 sps with 16-bit resolution. Additional gain-ranging provides 126 dB dynamic range. These stations are operated in dialup mode with waveform segments of suspected events transmitted in digital mode to Weston Observatory for analysis and archiving. WES also maintains 8 SMA-1 strong-motion instruments in New England.

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Seismicity

There were 10 earthquakes that occurred in or adjacent to the NESN during this reporting period. A summary of the location data is given in Table 3. Figure 3 shows the locations of these events. Figure 4 shows the locations of all events since the beginning of network operation in October, 1975.

Table 4 gives the station phase data and detailed hypocenter data for each event listed in Table 3. In addition to NESN data, arrival time and magnitude data sometimes are contributed for seismic stations operated by the Geological Survey of Canada (GSC), the Lamont-Doherty Cooperative Seismographic Network, and the US National Seismic Network. Final locations for this section were computed using the program HYPO78. For regional events (those too far from the NESN to obtain accurate locations and magnitudes) phase data are given for NESN stations, but the entry in Table 3 lists the hypocenter and geographic location information adopted from the authoritative network. Accordingly, the epicenter is plotted on the maps using the entry from Table 3.

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Data Management

Recent event locations are available at http://aki.bc.edu/cgi-bin/NESN/recent_events.pl. Waveform data are saved in Nanometrics, ASCII, and SEED formats and are available by contacting, Anastasia Macherides Moulis, via email. Earthquake lists can be found at www.bc.edu/research/westonobservatory/northeast/eqcatalogs/. Currently available on the Weston Observatory web page is the full catalog of northeastern U.S. earthquake activity to the present time. This will be updated as new Northeastern U.S. Seismic Network Quarterly Earthquake Reports are produced.

For more information on matters discussed in this report or general earthquake information (reports, maps, catalogs, etc.) consult our web site www.bc.edu/westonobservatory or contact:

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Explanation of Tables

Table 1: List of personnel operating the NESN

Table 2: List of Seismic and Strong Motion Stations

1. Code = st ation name
2. Lat = station latitude, degrees north
3. Long = station longitude, degrees west
4. Elev = station elevation in meters
5. Location = geographic location
6. Operator = network operator

Table 3: Earthquake Hypocenter List

1. D ate = date event occurred, Yr (year)/Mo (month)/Dy (day)
2. Time = origin time of event, Hr (hour):Mn (minute):Sec (second)

   in UCT (Universal Coordinated Time, same as Greenwich Mean Time)
3. Lat = event location, latitude north in degrees
4. Long = event location, longitude west in degrees
5. Depth = event depth in kilometers
6. Mag = event magnitude
7. Int = event epicentral intensity
8. Location = event geographic location

Table 4: Earthquake detailed hypocenter and phase data list

Table Header: detailed hypocenter data

1. Geographic location
2. DATE = date event occurred, yr/mo/dy (year/month/day)
3. ORIGIN = event origin time (UCT) in hours, minutes, and seconds
4. LAT N = latitude north in degrees and minutes
5. LONG W = longitude west in degrees and minutes
6. DEPTH = event depth in kilometers
7. MN = Nuttli Lg phase magnitude with amplitude divided by period
8. MC = signal duration (coda) magnitude

   WES: 2.23 Log(FMP) + 0.12Log(Dist) - 2.36 (Rosario, 1979)
   MIT: 2.21 Log(FMP) - 1.7 (Chaplin *et al.*, 1980)
9. ML = local magnitude

   WES: calculated from Wood-Anderson seismograms (Ebel, 1982)
   GSC (Geological Survey of Canada): Richter Lg magnitude
10. GAP = largest azimuthal se paration, in degrees, between stations
11. RMS = root mean square error of travel time residual in seconds
12. ERH = standard error of epicenter in kilometers
13. ERZ = standard error of event depth in kilometers
14. Q = solution quality of hypocenter

    A = excellent
    B = good
    C = fair
    D = poor

Table Body: earthquake phase data

1. STN = station name
2. DIST = epicentral distance in kilometers
3. AZM = azimuthal angle in degrees measured clockwise between true north and vector pointing from epicenter to station
4. Description of onset of phase arrival

I = impulsive
E = emergent

5. R = phase

   P = first P arrival
   S = first S arrival

6. M = first motion direction of phase arr ival

   U = up or compression
   D = down or dilatation

7. K = weight of arrival

   0 = full weight (1.0)
   1 = 0.75 weight
   2 = 0.50 weight
   3 = 0.25 weight
   4 = no weight (0.0)

8. HRMN = hour and minute of phase arriva l
9. SEC = second of phase arrival
10. TCAL = calculated travel time of phase in seconds
11. RES = travel time residual (error) of phase arrival
12. WT = weight of phase used in hypocentral solution
13. AMX = peak-to-peak ground motion, in millimicrons, of the maximum envelope amplitude of vertical-component signal, corrected for system response
14. PRX = period in seconds of the signal from which amplitude was measured
15. XMAG = Nuttli magnitude recorded at station
16. FMP = sign al duration (coda), in seconds, measured from first P arrival
17. FMAG = coda magnitude recorded at station

Table 5: Microearthquakes and other non-locatable events

1. Date = date event occurred, Yr (year)/Mo (month)/Dy (day)
2. Sta = neares t station recording event
3. Arrival Time = phase arrival time, Hr (hour):Mn (minute):Sec (second)

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TABLE 1

WESTON OBSERVATORY PERSONNEL

Name	Network Position	voice phone	email address
John E. Ebel	Principal Investigator	617-552-8319	ebel@bc.edu
Alan Kafka	Research Seismologist	617-552-8300	kafka@bc.edu
Anastasia Macherides Moulis	Seismic Analyst	617-552-8325	macherid@bc.edu
Dina Smith	Associate Director, Operations	617-552-8335	dina.smith.1@bc.edu
Michael Hagerty	NESN Operator	617-552-8337	hagertmb@bc.edu
		617-552-8300	
Weston Observatory		617-552-8388 (FAX)	

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TABLE 2

SEISMIC STATIONS OF THE NEW ENGLAND SEISMIC NETWORK

WES43.7050-72.3525Belchertown, MATroy, NYWESUMMWES42.3850WESYLEPQI46.6710

Code	Lat	Long	Elev (m)	Location	Operator
BCX *	42.3350	-71.1705	61.0	Chestnut Hill, MA	WES
BRYW	41.9178	-71.5388	380.0	Smithfield, RI	WES
FFD	43.4702	-71.6533	131.0	Franklin Falls Dam, NH	
HNH	-72.2860	180.0	Hanover, NH	WES	
QUA2	42.2789	168.0	WES		
TRY	42.7311	-73.6669	131.0		
44.7100	-67.4583	35.0	Machias, ME	WES	
VT1	44.3317	-72.7536	410.0	Waterbury, VT	WES
-71.3220	60.0	Weston, MA	WES		
WVL	44.5648	-69.6575	85.0	Waterville, ME	
41.3100	-72.9269	10.0	New Haven, CT	WES	
-68.0168	175.0	Presque Isle, ME	WES		

* = not in operation during this quarter

STRONG MOTION STATIONS OF THE NEW ENGLAND SEISMIC NETWORK

SM2-73.10Newport, RISM4-71.30WESSM742.39-71.54WES

Code	Lat	Long	Location	Operator

SM1	44.90	-67.25	Dennysville, ME	WES
44.49	Essex Junction, VT	WES		
SM3	41.45	-71.33	WES	
42.38	-71.32	Weston, MA	WES	
SM5	42.66	Lowell, MA		
SM6	42.30	-71.34	Natick, MA	WES
Huds on, MA	WES			
SM8	44.48	-69.61	North Vassalboro, ME	

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TABLE 3

NEW ENGLAND AND ADJACENT REGIONS

April-June, 2005

Date M/D/Y	Time (UTC) Hr:Mn:Sec	Lat	Long	Depth (km)	Mag	Int	Location
04/05/2005	22:01:02.44	41.722	-70.095	9.99	2.3		MA, 9.6KM (6MI) NORTH OF NEW BEDFORD
04/08/2005	04:32:39.47	46.440	-73.532	9.86	3.0		QB, 18KM (11MI) NW OF ST-GABRIEL
04/10/2005	03:06:52.59	43.7137	-71.1505	7.17	1.5		NH,4KM (2.5MI) NW OF OSSIPEE
04/17/2005	00:18:38.12	44.8358	-73.7392	10.21	2.1		NY,27KM (16.8MI) NW OF PLATSBURG
04/23/2005	14:24:51.86	40.8953	-74.0640	0.60	2.4		NJ,10KM (6.2MI) ESE OF PATERSON
05/11/2005	02:34:10.45	45.2303	-69.1237	1.15	2.4		ME,9.5KM (6MI) NE OF DOVER-FOXCROFT
05/25/2005	19:22:13.18	46.2918	-75.6123	5.00	3.2		QB,30.5KM (19MI) ESE OF MANIWAKI
05/31/2005	13:49:05.44	44.9440	-74.0847	4.76	2.4		NY,2KM (1.2MI) N OF CHATEAUGAY
06/06/2005	03:13:45.09	44.0928	-72.9920	9.42	1.3		VT,16KM (10MI) NE OF MIDDLEBURY
06/16/2005	20:55:12.77	47.5645	-65.5587	16.20	2.9		NB,10KM (6.2MI) SE OF BATHURST

* indicates Mc rather than Mn.

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TABLE 4

EARTHQUAKE PHASE DATA LIST
NEW ENGLAND AND ADJACENT REGIONS
April-June, 2004

```
B5405A.XX
SOUTH & COASTAL NEW ENGLAND, CHIBURIS, 1979
05APR05 MA, 9.6KM (6 MI) NORTH OF NEW BEDFORD
  DATE     ORIGIN     LAT N     LONG W    DEPTH    MN  MC  ML GAP   RMS  ERH  ERZ Q
  50405 22 1  2.44 41-43.36  70-57.06    9.90  2.3  .0     317   .27  3.4  2.9 C
  STN   DIST AZM  RMK HRMN    SEC    TOBS    TCAL    RES    WT AMX PRX XMAG FMP FMAG
  BRY  53.5 294 EP  0 22 1 11.11    8.67    9.03   -.42 1.02 120 .10  2.1
                ES  0 22 1 18.82   16.38   16.07    .20 1.10
  WES  79.7 337 EP  0 22 1 15.77   13.33   13.19    .13 1.06 100 .10  2.2
                ES  0 22 1 26.08   23.64   23.47    .15 1.05
  HRV 100.5 330 EP  0 22 1 19.10   16.66   16.35    .28  .98
                ES  0 22 1 31.20   28.76   29.10   -.39  .94
 QUA2 131.5 298 EP  0 22 1 23.74   21.30   21.06    .21  .93 124 .18  2.5
                ES  0 22 1 39.76   37.32   37.48   -.21  .93
  HNH 245.9 334 EP  4 22 1 39.56   37.12   35.97   1.12  .00
                ES  4 22 1 72.11   69.67   64.02   5.60  .00
B5408A.XX
NORTHERN NY AND ADIRONDACKS
05APR08 CANADA, 18KM (11MI) NW OF ST-GABRIEL, QUEBEC
  DATE     ORIGIN     LAT N     LONG W    DEPTH    MN  MC  ML GAP   RMS  ERH  ERZ Q
  50408  432 39.47 46-26.42  73-31.97    9.86  3.0 3.3     133   .50  1.9  3.2 D
  STN   DIST AZM  RMK HRMN    SEC    TOBS    TCAL    RES    WT AMX PRX XMAG FMP FMAG
  DAQ 242.5  46   P  1  433 15.49   36.02   35.31    .55 1.52
                 S  2  433 43.87   64.40   62.85   1.26  .84
  A54 263.2  65   P  0  433 17.44   37.97   37.86    .04 1.93
                 S  0  433 46.86   67.39   67.39   -.12 1.93
  A11 269.8  71   P  1  433 18.61   39.14   38.67    .46 1.40
                 S  4  433 51.80   72.33   68.83   3.48  .00
  LMQ 273.2  63   P  0  433 18.50   39.03   39.09   -.14 1.86
                 S  0  433 49.05   69.58   69.59   -.13 1.86
  NCB 279.7 191 IP  3  433 17.09   37.62   39.90 -2.38  .02               249  3.4
                 S  0  433 50.86   71.39   71.02    .19 1.82
  A16 291.3  67   P  3  433 22.70   43.23   41.33   1.90  .11
                 S  1  433 52.60   73.13   73.56   -.43 1.29
  A61 296.1  62   P  0  433 21.40   41.93   41.92   -.01 1.71
                 S  0  433 54.07   74.60   74.62   -.04 1.71
 CRLO 300.3 261   P  1  433 21.62   42.15   42.44   -.32 1.26
                 S  0  433 54.92   75.45   75.54   -.15 1.68
  A64 316.6  61   P  1  433 23.66   44.19   44.44   -.28 1.18
                 S  3  433 57.34   77.87   79.11 -1.28  .32
  HNH 319.4 162 EP  3  433 25.27   45.80   44.80    .97  .36 100 .15  3.2 187  3.2
                ES  3  433 60.46   80.99   79.74   1.20  .33
  A21 323.8  64   P  4  433 27.51   48.04   45.34   2.69  .00
                 S  2  433 59.50   80.03   80.70   -.69  .74
 KGNO 338.2 223   P  2  433 25.42   45.95   47.12 -1.19  .62
                 S  4  433 60.32   80.85   83.88 -3.05  .00
 VLDQ 350.0 302   P  4  433 32.67   53.20   48.57   4.60  .00
                 S  4  433 72.80   93.33   86.46   6.83  .00
```

```
   FFD 361.8 156 EP 4   433 26.70  47.23  50.03 -2.83  .00
                 ES 3   433 66.43  86.96  89.06 -2.14  .04
   EEO 425.9 273  P 1   433 37.85  58.38  57.95   .36  .62
                  S 2   433 83.64 104.17 103.14   .90  .39
   HRV 464.5 160 EP 4   433 49.83  70.36  62.70  7.62  .00
  QUA2 471.9 169 EP 4   433 50.66  71.19  63.62  7.54  .00  35 .28  2.9
  SADO 475.4 247  P 1   433 42.87  63.40  64.06  -.70  .36
                  S 4   433 89.70 110.23 114.02 -3.86  .00
   WES 483.8 159 EP 4   433 48.61  69.14  65.09  4.03  .00  30 .32  2.8   0  3.3
  PKRO 514.9 238  P 4   433 56.05  76.58  68.93  7.62  .00
   CNQ 517.5  52  P 2   433 48.15  68.68  69.26  -.61  .11
                  S 4   433 99.75 120.28 123.28 -3.06  .00
   GGN 542.1 106  P 3   433 50.40  70.93  72.29 -1.37  .00
   GSQ 555.0  60  P 1   433 53.95  74.48  73.88   .58  .00
   MNQ 575.1  38  P 3   433 57.27  77.80  76.36  1.35  .00
   ICQ 579.4  54  P 3   433 55.17  75.70  76.90 -1.21  .00
  ACTO 603.4 239  P 4   433 62.98  83.51  79.86  3.59  .00
  TYNO 624.2 233  S 4   435  2.92 143.45 146.73 -3.33  .00
  ELGO 624.3 241  S 4   435  2.23 142.76 146.74 -4.09  .00
   SMQ 658.5  50  P 1   434  5.73  86.26  86.67  -.47  .00
                  S 4   434 71.02 151.55 154.26 -2.83  .00
  BRCO 665.5 248  S 4   434 72.93 153.46 155.78 -2.42  .00
   LMN 678.0  96  P 3   434  6.60  87.13  89.06 -2.00  .00
                  S 4   434 73.82 154.35 158.54 -4.30  .00
   HAL 802.0 105  S 4   434 92.86 173.39 185.78-12.41  .00
B5410A.XX
SOUTHEAST MAINE CRUSTAL MODEL
05APR10 NH, 4KM (2.5MI) NW OF OSSIPEE
  DATE      ORIGIN     LAT N     LONG W   DEPTH   MN  MC  ML GAP   RMS  ERH  ERZ Q
  50410   3 6 52.59 43-42.82  71- 9.03   7.17  1.5  .0     269   .19  1.9  2.0 B
  STN   DIST AZM  RMK HRMN    SEC    TOBS    TCAL    RES    WT AMX PRX XMAG FMP FMAG
  FFD   48.8 236 EPD9  3 6 53.72   1.13    8.01    .02 3.13
                 S 0   3 6 60.01   6.29   14.27    .02 ****
  HNH   91.5 269 EP 4   3 7  6.14  13.55  14.79 -1.27  .00  17 .10  1.5
                 S 4   3 7 16.04  23.45  26.32 -2.93  .00
  HRV 138.2 194 EP 2   3 7 14.95  22.36  22.21   .12 1.27
                 S 3   3 7 31.54  38.95  39.54  -.64  .28
  WES 148.3 185 EP 2   3 7 16.60  24.01  23.79   .21 1.22   6 .12  1.4
                 S 3   3 7 34.74  42.15  42.35  -.22  .62
  WVL 149.5  53 EP 4   3 7 17.24  24.65  23.98   .66  .00
                ES 4   3 7 34.76  42.17  42.69  -.53  .00
 QUA2 187.1 212 EPD2  3 7 21.32  28.73  28.65   .05 1.13   4 .12  1.5
                 S 3   3 7 43.54  50.95  50.99  -.10  .57
  NCB 249.0 277 EP 3   3 7 28.43  35.84  36.28  -.54  .32
                 S 3   3 7 57.53  64.94  64.58   .18  .46
B5417A.XX
NORTHERN NY AND ADIRONDACKS
05APR17 NY, 27KM (16.8MI) NW OF PLATTSBURG
  DATE      ORIGIN     LAT N     LONG W   DEPTH   MN  MC  ML GAP   RMS  ERH  ERZ Q
  50417   018 38.12 44-50.15  73-44.35  10.21  2.1 2.8     96   .53  1.9  2.4 D
  STN   DIST AZM  RMK HRMN    SEC    TOBS    TCAL    RES    WT AMX PRX XMAG FMP FMAG
  TRQ 166.8 338 EP 1   019  4.16  26.04  25.55   .50 1.42
                 S 0   019 23.35  45.23  45.47  -.24 1.93
  GAC 167.0 305 EP 1   019  4.32  26.20  25.59   .61 1.40
                 S 2   019 22.90  44.78  45.54  -.78  .89
  HNH 171.0 137 EP 4   019   .67  22.55  26.19 -3.66  .00  19 .10  2.0 128  2.8
                 S 1   019 24.07  45.95  46.61  -.71 1.36
  DPQ 218.2  20  P 2   019 11.32  33.20  32.27   .93  .73
                 S 1   019 35.04  56.92  57.45  -.53 1.21
  FFD 225.5 132 EP 4   019  9.37  31.25  33.17 -1.93  .00
                 S 4   019 35.33  57.21  59.03 -1.86  .00
 KGNO 229.2 253  P 0   019 11.97  33.85  33.63   .21 1.62
                 S 4   019 35.95  57.83  59.87 -2.05  .00
  GRQ 257.0 320  P 4   019 17.94  39.82  37.06  2.72  .00
                 S 0   019 44.04  65.92  65.96  -.12 1.48
 QUA2 305.4 158 EP 0   019 21.69  43.57  43.03   .51 1.21  12 .16  2.2 116  2.9
                 S 4   019 58.91  80.79  76.60  4.14  .00
 CRLO 314.8 295  P 0   019 21.98  43.86  44.20  -.37 1.17
                 S 4   019 54.57  76.45  78.67 -2.27  .00
   WES 335.1 144 ES 4   019 68.56  90.44  83.12  7.30  .00   4 .14  1.9
 WLVO 384.7 255  P 4   019 34.11  55.99  52.83  3.16  .00
                 S 4   019 69.45  91.33  94.03 -2.72  .00
   A54 388.6  41  P 2   019 32.12  54.00  53.31   .63  .39
                 S 2   019 72.36  94.24  94.89  -.76  .38
   DAQ 397.2  29  S 4   019 73.07  94.95  96.78 -2.11  .00
   LMQ 400.4  41  P 0   019 33.37  55.25  54.76   .42  .75
   A61 424.1  42  P 3   019 36.73  58.61  57.70   .91  .14
  SADO 427.5 269  P 1   019 35.17  57.05  58.11 -1.10  .36
                 S 4   019 78.65 100.53 103.44 -2.98  .00
  PKRO 435.6 257  P 0   019 37.58  59.46  59.11   .32  .57
   EEO 461.4 296  S 4   019 85.94 107.82 110.88 -3.18  .00
  VLDQ 462.5 322  P 4   019 43.07  64.95  62.44  2.50  .00
                 S 4   019 92.02 113.90 111.13  2.73  .00
   PQI 489.4  65  S 4   019 39.58  61.46 117.04-55.64  .00
B5423A.XX
SE OF NEW YORK, HUGHES & LUETGERT
05APR23 NEW JERSEY, 10KM (6.2MI) ESE OF PATERSON
  DATE      ORIGIN     LAT N     LONG W   DEPTH   MN  MC  ML GAP   RMS  ERH  ERZ Q
  50423 1424 51.86 40-53.72  74- 3.84    .60  2.4 2.7     98   .36  1.0  3.2 C
  STN   DIST AZM  RMK HRMN    SEC    TOBS    TCAL    RES    WT AMX PRX XMAG FMP FMAG
  CPNY  14.5 143  P 0 1424 53.68   1.82    2.29   -.47 1.14
                 S 0 1424 55.44   3.58    4.07   -.49 1.13
   PAL  17.8  47 IPD0 1424 54.62   2.76    2.78   -.05 1.18
                 S 0 1424 57.06   5.20    4.96    .21 1.18
   TBR  30.4 334 IPU0 1424 56.50   4.64    4.71   -.11 1.15
                 S 0 1424 60.42   8.56    8.39    .10 1.15
   GPD  36.0 292 IPU0 1424 57.23   5.37    5.57   -.26 1.13
                 S 0 1424 61.47   9.61    9.92   -.42 1.11
  ARNY  45.5 355  P 0 1424 58.85   6.99    7.01   -.10 1.12
                 S 0 1424 64.43  12.57   12.48   -.04 1.12
  BRNJ  48.5 241  P 0 1424 59.71   7.85    7.47    .37 1.10
                 S 0 1424 65.82  13.96   13.30    .64 1.03
 QUA2 209.7  43 EP 0 1425 24.44  32.58   32.09    .46  .73  23 .09  2.4 105  2.7
                ES 4 1425   .00   8.14  57.11-49.03  .00
   BRY 239.8  62 ES 0 1425 56.97  65.11  64.47   .53  .66  27 .09  2.6
   WES 282.2  54 ES 4 1425 68.30  76.44  73.79  2.63  .00   8 .09  2.2
   NCB 341.9 358 EP 0 1425 42.17  50.31  48.82  1.39  .05
                 ES 4 1425 83.20  91.34  86.90  4.26  .00
B5511A.XX
SOUTHEAST MAINE CRUSTAL MODEL
05MAY11 ME, 9.5KM (6MI) NE OF DOVER-FOXCROFT
  DATE      ORIGIN     LAT N     LONG W   DEPTH   MN  MC  ML GAP   RMS  ERH  ERZ Q
  50511   234 10.45 45-13.82  69- 7.42   1.15  2.4  .0     95   .49  1.1  2.1 C
  STN   DIST AZM  RMK HRMN    SEC    TOBS    TCAL    RES    WT AMX PRX XMAG FMP FMAG
  WVL   88.9 209 EPD1  234 24.40  13.95  14.53   -.59 2.06  31 .08  1.8
                 ES 0  234 36.12  25.67  25.86   -.21 2.84
  UMM 143.5 114 IPD1  234 34.26  23.81  23.20    .60 1.82  58 .10  2.4
                 ES 0  234 51.41  40.96  41.29   -.35 2.48
```

```
   GGN 181.3  94 EP 2  234 39.67  29.22  28.57   .64 1.10
                 ES 0  234 61.22  50.77  50.85  -.10 2.27
   PQI 181.6  28 EP 4  234 35.12  24.67  28.61 -3.98  .00  76 .20  2.5
                 ES 4  234 63.04  52.59  50.93  1.60  .00
   A11 238.5 340 ES 4  234 70.57  60.12  63.43 -3.33  .00
   MOQ 245.7 272 EP 3  234 48.53  38.08  36.52  1.41  .23
                 ES 2  234 76.40  65.95  65.01   .69  .90
   A54 266.7 338 EP 1  234 50.09  39.64  39.11   .46 1.29
                 ES 1  234 79.66  69.21  69.62  -.52 1.27
   LMQ 273.8 340 EP 0  234 50.37  39.92  39.98  -.14 1.70
                 ES 4  234 79.50  69.05  71.17 -2.25  .00
   A21 278.3 351 EP 3  234 52.72  42.27  40.55  1.71  .08
                 ES 4  234 79.86  69.41  72.18 -2.79  .00
   FFD 280.8 226 EPC0  234 51.12  40.67  40.86  -.21 1.66 114 .16  3.1
                 ES 1  234 83.64  73.19  72.73   .42 1.23
   A61 283.7 345 EP 0  234 51.46  41.01  41.21  -.22 1.64
                 ES 4  234 80.46  70.01  73.36 -3.37  .00
   HNH 303.2 236 EPD4  234 49.21  38.76  43.62 -4.90  .00  15 .20  2.2
                 ES 1  234 87.60  77.15  77.65  -.56 1.10
   HRV 360.4 213 EP 1  235  1.85  51.40  50.68   .69  .84
                 ES 4  235 49.05  98.60  90.21  8.33  .00
   WES 362.3 209 EPD2  235  2.00  51.55  50.92   .62  .56   5 .15  2.1
                 ES 2  235 41.90  91.45  90.64   .79  .54
  QUA2 418.4 218 EP 9  235 16.20  65.75  57.84  1.76  .00  16 .26  2.5
                 ES 4  235 63.10  46.90 102.96  1.76 ****
   NCB 428.4 251 EP 3  235 11.00  60.55  59.08  1.36  .10
                 ES 0  235 55.70 105.25 105.17  -.10  .75
   GSQ 437.1  20 EP 2  235  9.81  59.36  60.15  -.81  .32
                 ES 4  235 53.20 102.75 107.07 -4.34  .00
   TRQ 437.2 285 EP 0  235 11.16  60.71  60.16   .54  .68
                 ES 3  235 55.87 105.42 107.09 -1.67  .03
   CNQ 459.6  10 EP 3  235 12.13  61.68  62.93 -1.28  .09
                 ES 4  235 58.16 107.71 112.01 -4.35  .00
   ICQ 497.1  16 EP 2  235 17.12  66.67  67.56  -.90  .14
                 ES 4  235 65.72 115.27 120.26 -5.01  .00
   GAC 499.5 276 EP 3  235 19.45  69.00  67.85  1.14  .06
                 ES 1  235 70.54 120.09 120.77  -.70  .22
   GRQ 544.7 286 ES 4  235 77.91 127.46 130.72 -3.35  .00
   MNQ 589.9   3 EP 4  235 22.55  72.10  79.01 -7.00  .00
                 ES 4  235 85.85 135.40 140.64 -5.40  .00
  CRLO 650.4 278 ES 4  236 47.93 157.48 153.95  3.47  .00
 B5525A.XX
 NORTHERN NY AND ADIRONDACKS
 05MAY25 CANADA, 30.5KM (19MI) ESE OF MANIWAKI, 30.5KM SSW OF MONT-LAURIER, QUEBEC
   DATE     ORIGIN     LAT N    LONG W   DEPTH   MN  MC  ML GAP   RMS  ERH  ERZ Q
   50525 1922 13.18 46-17.51  75-36.74   5.00  3.2 3.6     142   .49  1.6  2.4 C
   STN  DIST AZM  RMK HRMN    SEC    TOBS    TCAL    RES    WT AMX PRX XMAG FMP FMAG
   MNT 177.6 120  P 2 1922 40.92  27.74  27.16   .57 1.54
                  S 1 1922 61.15  47.97  48.34  -.40 2.34
   DPQ 221.9  79  P 1 1922 46.09  32.91  33.18  -.27 2.08
                  S 1 1922 72.54  59.36  59.06   .30 2.08
  KGNO 239.6 197  P 1 1922 48.85  35.67  35.37   .29 1.97
                  S 4 1922 74.30  61.12  62.97 -1.86  .00
  VLDQ 245.8 325  P 4 1922 51.77  38.59  36.14  2.43  .00
                  S 4 1922 80.20  67.02  64.32  2.66  .00
   EEO 268.5 278  P 2 1922 52.66  39.48  38.94   .47 1.18
                  S 0 1922 82.42  69.24  69.31  -.19 2.38
   NCB 280.1 157  PC0 1922 53.94  40.76  40.38   .29 2.29              302  3.6
                  S 1 1922 85.04  71.86  71.87  -.18 1.71
   MOQ 282.9 113  P 1 1922 54.65  41.47  40.71   .62 1.64
                  S 4 1922 83.55  70.37  72.47 -2.35  .00
  SADO 323.6 238  P 2 1922 58.25  45.07  45.74  -.71  .92
                  S 4 1922 91.57  78.39  81.43 -3.11  .00
   QCQ 337.0  81  P 3 1923  1.81  48.63  47.39  1.22  .37
                  S 4 1923 95.86 142.68  84.36 58.29  .00
  WLVO 342.5 220  P 1 1923  1.00  47.82  48.08  -.27 1.32
                  S 4 1923 35.85  82.67  85.58 -2.93  .00
  PKRO 375.6 226  P 4 1923  9.62  56.44  52.16  4.26  .00
                  S 4 1923 43.00  89.82  92.84 -3.07  .00
   DAQ 380.3  61  P 3 1923  4.93  51.75  52.74 -1.15  .29
                  S 4 1923 44.86  91.68  93.88 -2.48  .00
   HNH 389.2 138 ES 4 1923 53.03  99.85  95.82  3.98  .00  95 .25  3.2
   A54 416.8  72  P 3 1923  9.37  56.19  57.25 -1.12  .23
                  S 4 1923 51.67  98.49 101.91 -3.52  .00
   LMQ 426.3  71  P 3 1923 10.42  57.24  58.42 -1.25  .19
                  S 4 1923 54.60 101.42 103.99 -2.69  .00
   A11 426.7  76  P 1 1923 11.07  57.89  58.46  -.58  .76
                  S 0 1923 57.29 104.11 104.07   .03 1.04
   FFD 442.9 135 EP 4 1923 18.34  65.16  60.46  4.68  .00 388 .55  3.6
                 ES 2 1923 63.20 110.02 107.63  2.36  .00
   A16 446.5  73  P 3 1923 15.37  62.19  60.91  1.28  .17
                  S 4 1923 57.94 104.76 108.42 -3.66  .00
   A61 447.9  70  P 1 1923 13.82  60.64  61.09  -.46  .64
                  S 4 1923 59.19 106.01 108.74 -2.75  .00
  ACTO 460.5 230  P 3 1923 17.68  64.50  62.64  1.80  .05
   EFO 460.9 220  P 3 1923 14.96  61.78  62.69  -.94  .17
   A64 466.7  69  P 3 1923 15.05  61.87  63.40 -1.55  .08
                  S 4 1923 62.68 109.50 112.86 -3.39  .00
   A21 477.0  71  P 3 1923 16.52  63.34  64.68 -1.35  .10
                  S 4 1923 65.79 112.61 115.13 -2.54  .00
  ELGO 478.8 233  P 1 1923 18.64  65.46  64.90   .50  .45
                  S 4 1923 64.61 111.43 115.53 -4.20  .00
   WVL 505.0 113 ES 4 1924 32.72 139.54 121.29 18.23  .00  31 .21  3.1
  BRCO 509.6 243  P 4 1923 19.74  66.56  68.70 -2.19  .00
                  S 3 1923 73.71 120.53 122.29 -1.85  .01
  QUA2 516.2 150 ES 4 1924 29.10 135.92 123.75 12.12  .00  83 .34  3.3
   HRV 530.3 142 ES 4 1924 36.70 143.52 126.84 16.62  .00
   WES 552.9 142 ES 4 1924 42.60 149.42 131.81 17.60  .00  66 .40  3.2
   PQI 584.6  86 ES 4 1924 51.63 158.45 138.77 19.63  .00  54 .36  3.2
   CNQ 656.5  59  P 0 1923 39.71  86.53  86.84  -.34  .00
   MNQ 691.9  47  P 2 1923 43.52  90.34  91.22  -.96  .00
   GGN 697.0 101  P 4 1923 42.05  88.87  91.84 -2.98  .00
   GSQ 702.7  65  P 3 1923 44.50  91.32  92.55 -1.23  .00
   SMQ 792.5  57  P 3 1923 55.00 101.82 103.63 -1.87  .00
   LMN 837.1  93  P 3 1924  1.32 108.14 109.13 -1.05  .00
                  S 4 1924 81.77 188.59 194.25 -5.77  .00
 B5531A.XX
 NORTHERN NY AND ADIRONDACKS
 05MAY31 NY, 2KM (1.2MI) N OF CHATEAUGAY, 19KM (12MI) NE OF MALONE
   DATE     ORIGIN     LAT N    LONG W   DEPTH   MN  MC  ML GAP   RMS  ERH  ERZ Q
   50531 1349  5.44 44-56.64  74- 5.08   4.76  2.4  .0      55   .49   .8  2.0 C
   STN  DIST AZM  RMK HRMN    SEC    TOBS    TCAL    RES    WT AMX PRX XMAG FMP FMAG
   BGR  26.2 241 EP 1 1349  9.52   4.08   4.23   -.20 1.42
                 ES 1 1349 12.90   7.46   7.53   -.15 1.42
  MSNY  61.6 276 EP 0 1349 14.98   9.54   9.58   -.05 1.76
                 ES 0 1349 22.48  17.04  17.06   -.03 1.76
   MNT  71.9  30 EP 1 1349 16.33  10.89  11.14   -.27 1.30
                 ES 1 1349 25.00  19.56  19.83   -.31 1.30
```

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 HBVT 103.5 129 EP 0 1349 21.60  16.16  15.93   .17 1.61
                ES 2 1349 34.72  29.28  28.36   .82  .81
  MIV 106.3 155 EP 0 1349 21.69  16.25  16.35  -.15 1.60
                ES 0 1349 34.84  29.40  29.10   .21 1.60
  NCB 108.7 186 EPC1 1349 22.05  16.61  16.72  -.21 1.20
                ES 1 1349 35.06  29.62  29.76  -.32 1.20
  OTT 137.6 291 EP 1 1349 26.82  21.38  21.10   .28 1.12
                ES 1 1349 43.53  38.09  37.55   .52 1.12
  GAC 138.1 308 EP 1 1349 26.91  21.47  21.17   .29 1.12
                ES 0 1349 43.28  37.84  37.69   .13 1.49
  TRQ 146.7 346 EP 0 1349 27.92  22.48  22.48   .00 1.46
                ES 0 1349 45.50  40.06  40.02   .04 1.46
  MOQ 149.8  74 EP 0 1349 28.61  23.17  22.94   .09 1.45
                ES 0 1349 46.46  41.02  40.84  -.07 1.45
 ACCN 176.5 169 EP 0 1349 32.35  26.91  26.99  -.14 1.35
                ES 0 1349 53.66  48.22  48.05   .07 1.35
  HNH 198.9 134 EP 3 1349 48.29  42.85  30.37 12.46  .03  48 .17  2.4
                ES 0 1349 59.47  54.03  54.05  -.07 1.27
 KGNO 207.2 247 EP 3 1349 35.17  29.73  31.39 -1.67  .31
  DPQ 218.1  28 EP 3 1349 37.02  31.58  32.74 -1.16  .30
  FFD 254.2 130 EP 9 1349 57.68  52.24  37.19-14.85  .00
                ES 9 1349 71.85  14.17  66.19-14.85 ****
 CRLO 284.8 295 EP 1 1349 46.11  40.67  40.97  -.33  .72
 QUA2 327.5 155 EP 3 1350 20.40  74.96  46.24 28.69  .00
                ES 4 1350 33.64  88.20  82.31  5.83  .00
  HRV 338.9 143 EP 3 1350 21.61  76.17  47.65 28.49  .00
                ES 4 1350 36.80  91.36  84.81  6.49  .00
  WVL 353.2  97 ES 4 1350 40.86  95.42  87.96  7.45  .00  11 .14  2.4
  WES 361.2 142 EP 3 1350 21.75  76.31  50.40 25.90  .00  15 .21  2.4
                ES 4 1350 42.50  97.06  89.72  7.32  .00
 WLVO 361.8 252 ES 1 1349 95.63  90.19  89.85   .32  .51
  A54 397.9  45 EP 3 1349 59.29  53.85  54.94 -1.15  .14
 SADO 399.9 267 EP 3 1349 59.32  53.88  55.18 -1.34  .14
  DAQ 400.4  33 ES 1 1350 44.08  98.64  98.33   .03  .41
  LMQ 409.8  45 EP 3 1350  3.40  57.96  56.40  1.49  .13
                ES 4 1350 43.62  98.18 100.40 -2.34  .00
  EEO 431.3 296 EP 1 1350  5.10  59.66  59.06   .53  .32
                ES 2 1350 51.23 105.79 105.12   .54  .21
  A61 433.7  45 EP 2 1350  5.50  60.06  59.35   .70  .21
                ES 4 1350 47.87 102.43 105.65 -3.23  .00
 VLDQ 437.0 324 EP 4 1350  8.00  62.56  59.76  2.78  .00
                ES 4 1350 53.30 107.86 106.37  1.45  .00
B5606A.XX
HUGHES AND LUETGERT NH
05JUN06 VT, 16KM (10MI) NE OF MIDDLEBURY
  DATE     ORIGIN    LAT N    LONG W   DEPTH   MN  MC  ML GAP   RMS  ERH  ERZ Q
  50606  313 45.09 44- 5.57  72-59.52   9.42  1.3  .0     220   .42  3.9  3.0 C
  STN  DIST AZM  RMK HRMN   SEC   TOBS   TCAL   RES   WT AMX PRX XMAG FMP FMAG
  MIV  43.1 267 EP 2  313 53.11   8.02   7.37   .60  .81
                ES 0  313 58.30  13.21  13.12   .00 1.65
  HNH  71.2 127 EP 0  313 57.09  12.00  11.93   .05 1.56  12 .08  1.3
                ES 0  313 66.23  21.14  21.23  -.14 1.56
 ACCN  95.8 215 EP 1  314  1.48  16.39  15.85   .48 1.10
                ES 2  314 12.89  27.80  28.22  -.53  .71
  NCB  99.7 262  P 1  314  1.37  16.28  16.47  -.29 1.09
                 S 3  314 13.42  28.33  29.31 -1.16  .27
  FFD 128.0 123 EP 9  314  6.95  21.86  20.85 -4.76  .00
                ES 9  314 18.47  11.52  37.12 -4.76 ****
 QUA2 208.1 166 EP 4  314 19.93  34.84  31.96  2.86  .00   2 .11  1.3
                ES 2  314 42.93  57.84  56.88   .91  .51
  HRV 211.2 147 ES 3  314 45.16  60.07  57.55  2.46  .00
  WES 233.3 144 ES 1  314 47.10  62.01  62.42  -.42  .76   3 .15  1.4
B5616A.XX
NORTHWEST MAINE CRUSTAL STRUCTURE
05JUN16 CANADA, 10KM (6.2MI) SE OF BATHURST, NB
  DATE     ORIGIN    LAT N    LONG W   DEPTH   MN  MC  ML GAP   RMS  ERH  ERZ Q
  50616 2055 12.77 47-33.87  65-33.52  16.20  2.9 3.2     171   .45  1.5  2.6 C
  STN  DIST AZM  RMK HRMN   SEC   TOBS   TCAL   RES   WT AMX PRX XMAG FMP FMAG
  GSQ 189.3 322  P 1 2055 41.57  28.80  28.71   .08 1.66
                 S 2 2055 64.54  51.77  51.10   .65 1.09
  LMN 198.9 163  P 0 2055 42.67  29.90  29.89  -.06 2.15
                 S 0 2055 66.25  53.48  53.21   .16 2.15
  PQI 211.4 242 IPD3 2055 42.21  29.44  31.44 -2.03  .351004 .13  3.9 194  3.2
                 S 3 2055 64.61  51.84  55.96 -4.18  .00
  ICQ 251.8 330  P 2 2055 49.75  36.98  36.43   .54  .90
                 S 0 2055 77.85  65.08  64.84   .22 1.83
  CNQ 268.4 316  P 0 2055 51.22  38.45  38.47  -.06 1.73
                 S 2 2055 80.72  67.95  68.48  -.59  .85
  GGN 288.9 200  P 1 2055 53.95  41.18  41.01   .16 1.20
                 S 0 2055 85.62  72.85  73.00  -.17 1.60
  SMQ 307.3 344  P 1 2055 56.43  43.66  43.27   .32 1.12
                 S 2 2055 89.41  76.64  77.02  -.50  .74
  A21 311.1 273  P 3 2055 57.15  44.38  43.74   .62  .36
                 S 1 2055 90.74  77.97  77.86   .09 1.10
  A64 326.5 275  P 3 2055 59.03  46.26  45.65   .59  .34
                 S 2 2055 94.76  81.99  81.25   .70  .68
  A16 335.6 268  P 3 2055 58.10  45.33  46.77 -1.44  .30
                 S 1 2055 96.13  83.36  83.25   .11  .99
  A61 341.2 272  P 4 2055 56.80  44.03  47.46 -3.44  .00
                 S 1 2055 97.39  84.62  84.48   .12  .96
  UMM 349.6 205 EP 3 2056  5.92  53.15  48.50  4.63  .00 281 .20  3.6
                ES 3 2056 42.19  89.42  86.34  3.06  .03
  LMQ 358.6 270  P 0 2056  2.40  49.63  49.61  -.05 1.17
                 S 0 2056 40.82  88.05  88.30  -.38 1.17
  HAL 359.3 155  P 4 2056  4.37  51.60  49.70  1.89  .00
                 S 3 2056 40.15  87.38  88.46 -1.10  .28
  A54 366.0 268  P 4 2056  5.03  52.26  50.52  1.68  .00
                 S 0 2056 42.56  89.79  89.92  -.25 1.13
  MNQ 405.0 325  P 0 2056  8.11  55.34  55.33  -.09  .89
                 S 3 2056 50.28  97.51  98.49 -1.15  .21
  DAQ 428.1 276  P 4 2056  8.64  55.87  58.19 -2.49  .00
                 S 4 2056 51.17  98.40 103.59 -5.48  .00
  WVL 463.7 223 EP 4 2056 22.32  69.55  62.59  6.95  .00 209 .30  3.6
                ES 4 2056 75.14 122.37 111.41 10.94  .00
  MOQ 572.6 244  P 4 2056 89.01 136.24  76.02 60.07  .00
  FFD 658.8 226 ES 4 2058  8.70 175.93 154.28 21.61  .00   6 .38  2.3
  HNH 677.9 231 ES 4 2058 16.90 184.13 158.46 25.61  .00   5 .70  2.1
  WES 733.4 218 ES 4 2058 29.00 196.23 170.67 25.54  .00   6 .39  2.5
  HRV 734.7 220 ES 4 2058 35.20 202.43 170.96 31.42  .00
  GRQ 789.3 262  P 4 2056 59.83 107.06 102.78  4.23  .00
 QUA2 795.6 222 ES 4 2058 47.50 214.73 184.34 30.33  .00  10 .42  2.7
```

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TABLE 5

MICROEARTHQUAKES AND OTHER NON-LOCATABLE EVENTS

Date Yr/Mo/Dy	Sta	Arrival Time Hr:Mn:Sec
None recorded this period.		

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<

NESN Station Map

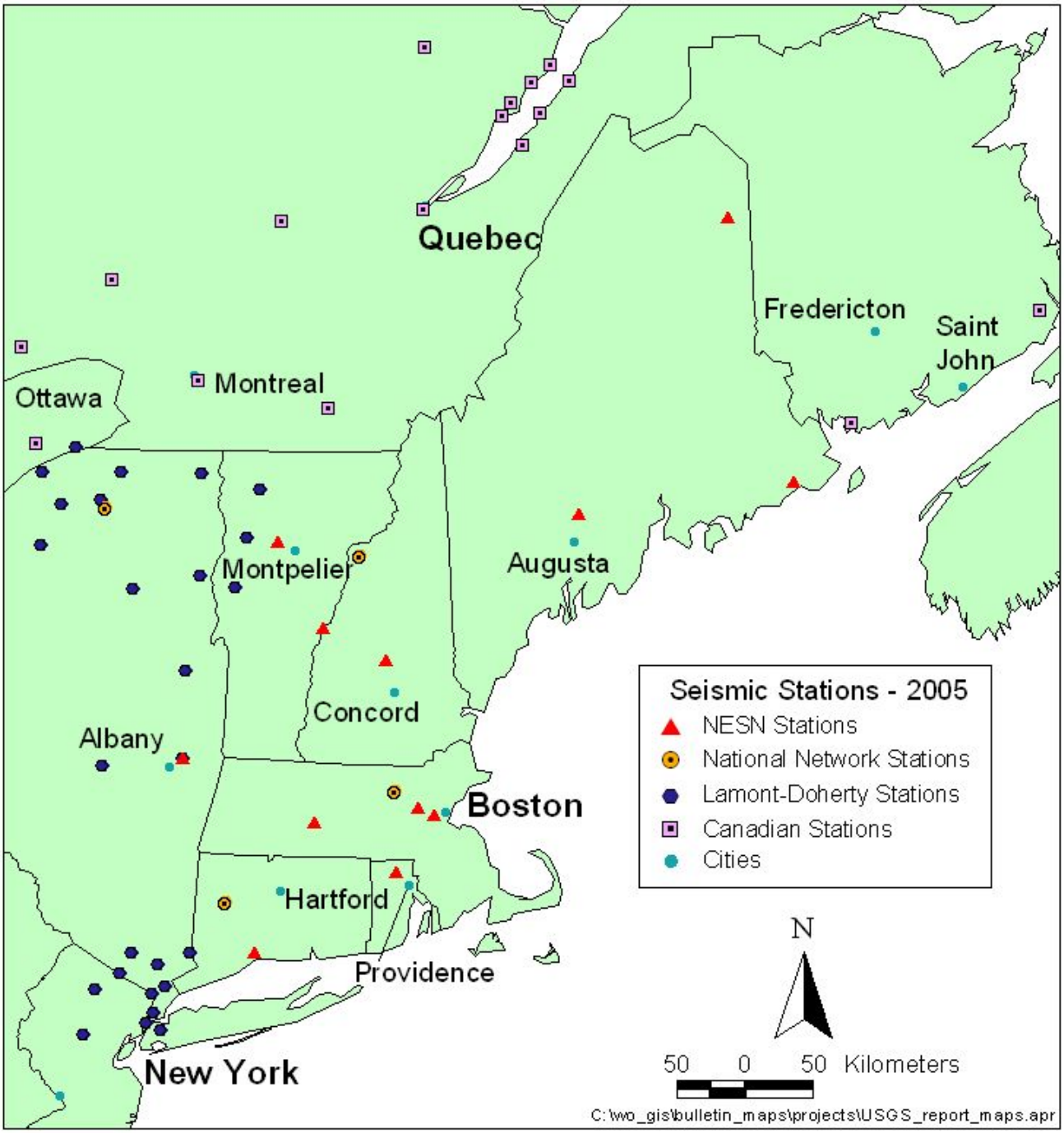

Figure 1: Map of stations of the New England Seismic Network (NESN) in operation during the period of this report. Also included are other Northeast U.S. and Canadian seismic stations in operation during this period.

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NESN Strong-Motion Station Map

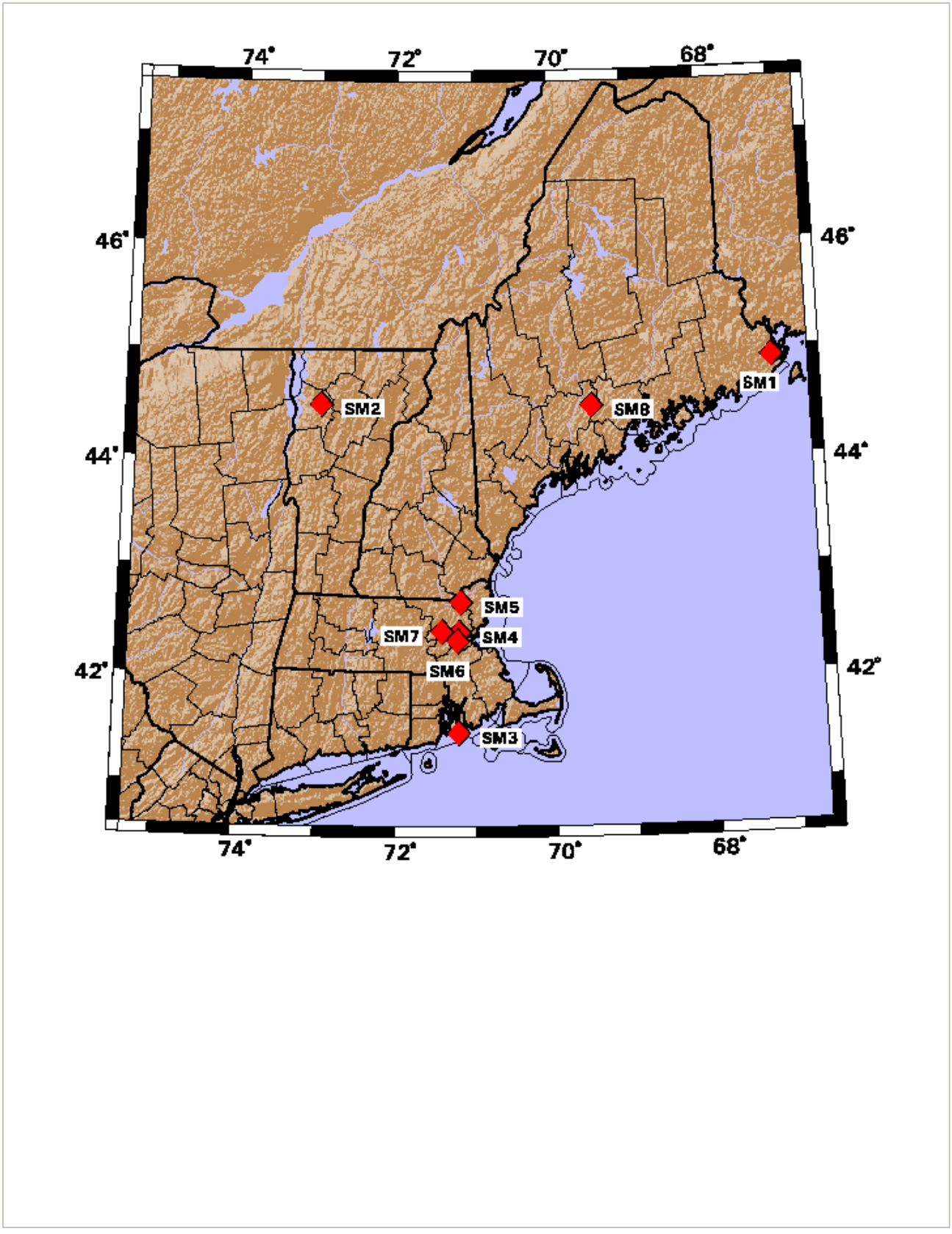

Figure 2: Map of strong-motion stations of the New England Seismic Network (NESN) in operation during the period of this report.

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NESN Quarterly Seismicity Map

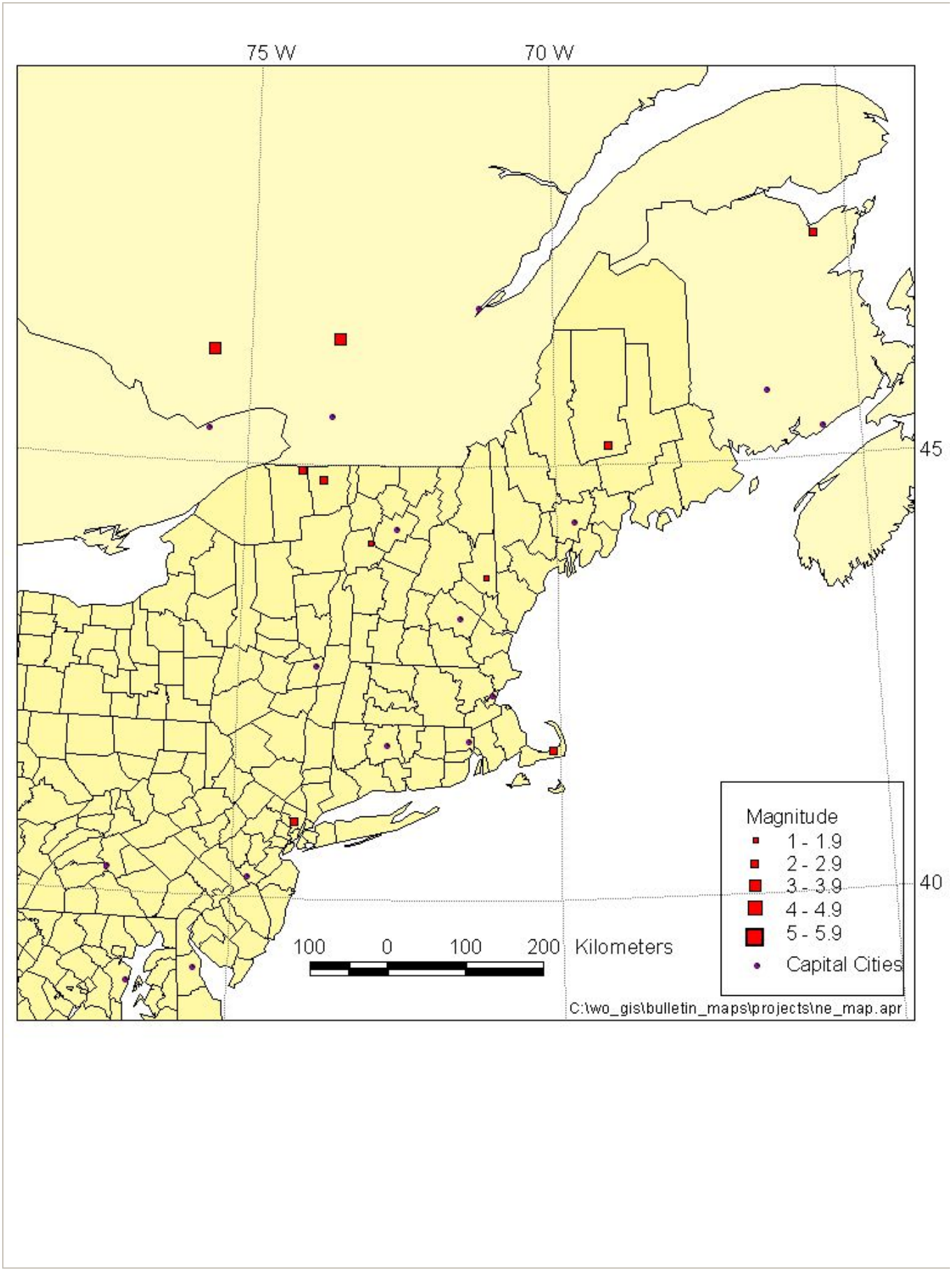

Figure 3: Earthquake epicenters located by the NESN during the period of this report.

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NESN Cumulative Seismicity Map

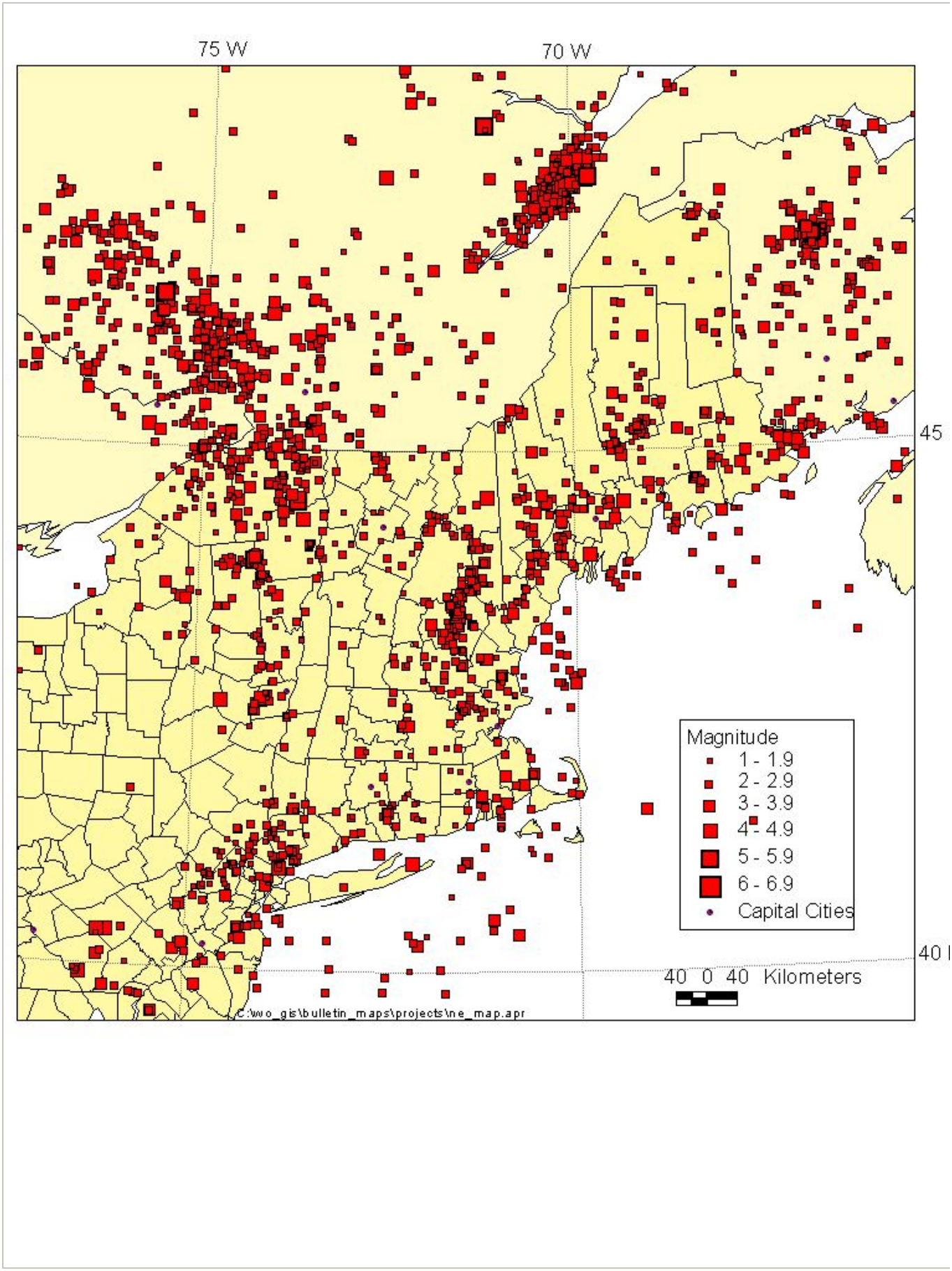

Figure 4: Seismicity for period October, 1975 - June, 2005.

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Acknowledgments

Our map database has been developedin-house using ArcView and in part basemap data provided byESRI, Inc. (Arcdata Online), USGS GTOPO30 Elevation Data, and TIGER/Line '94, '95, and '97 (US Census Bureau) spatial data.

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