Estudi neotectònic de l'àrea font dels sismes d'Os de Civís

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ANNEXOS

ANNEX 1. Mapa de detall del sector del sinclinal de Llavorsí a Andorra

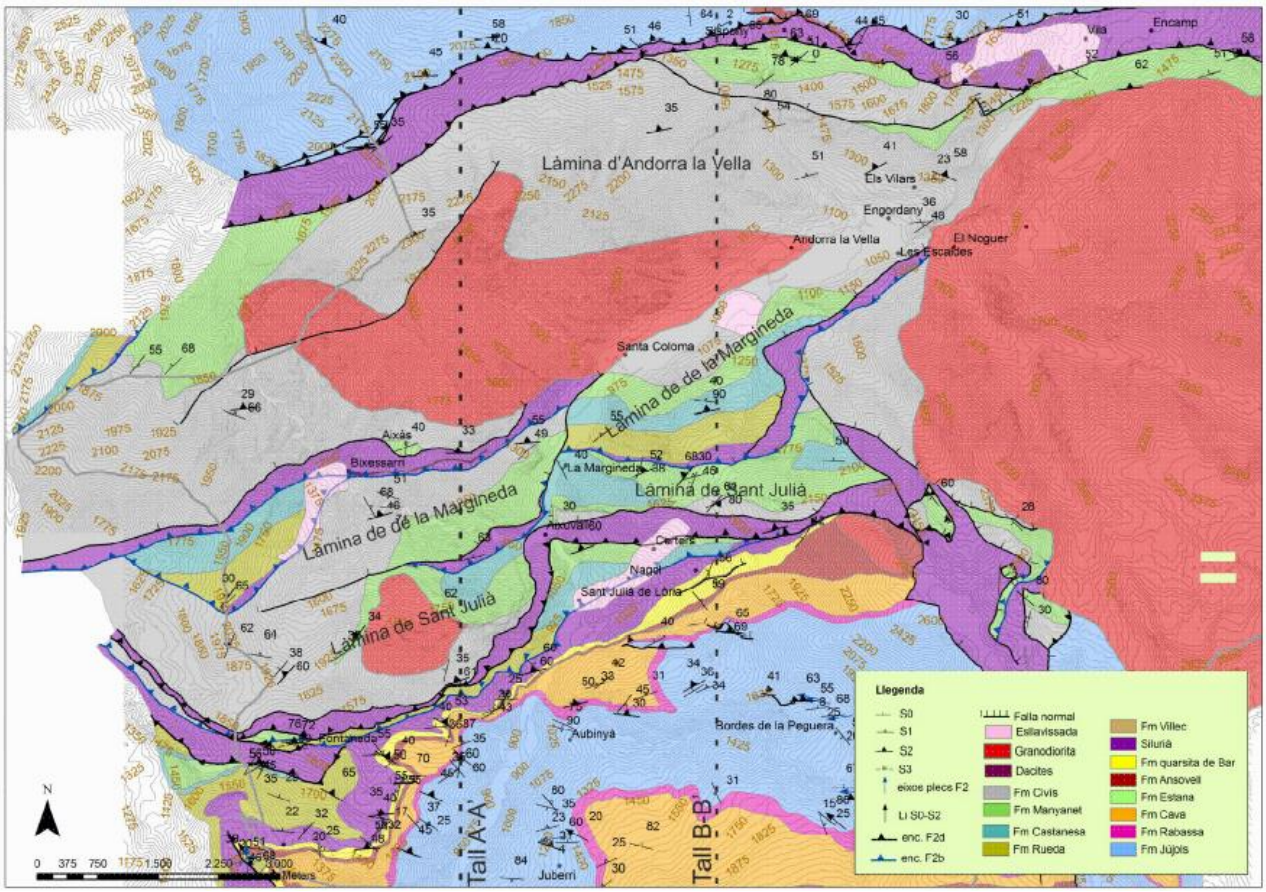

Fig. 1. Mapa geològic d'Andorra centrat en el sector del sinclinal de Llavorsí. S'observa que descriu dos encavalcaments delimitant una franja de Silurià que afecten la zona d'estudi d'aquest treball, al sector nord-occidental del mapa. Font: Margalef (2015).

ANNEX 2. Detall de la sèrie sísmica

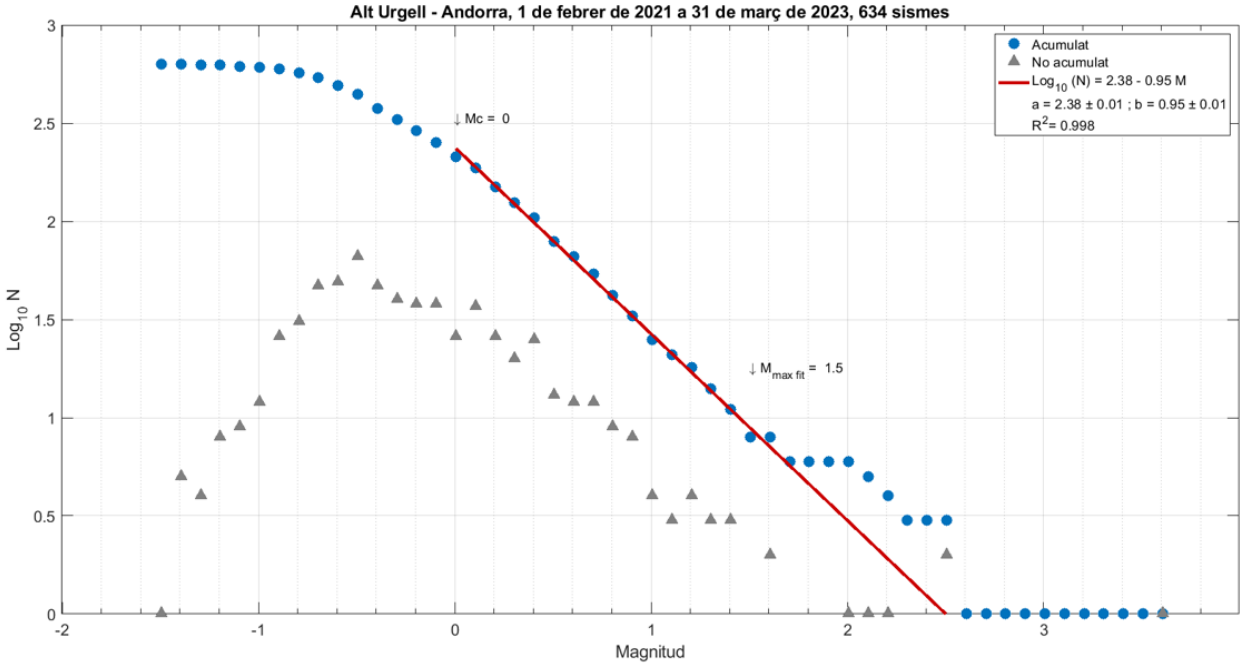

Fig. 2.1. Distribució de Guttenberg-Richter de la sèrie sísmica estudiada, elaborada per l'ICGC (2023). La magnitud de completesa és entorn a 0.

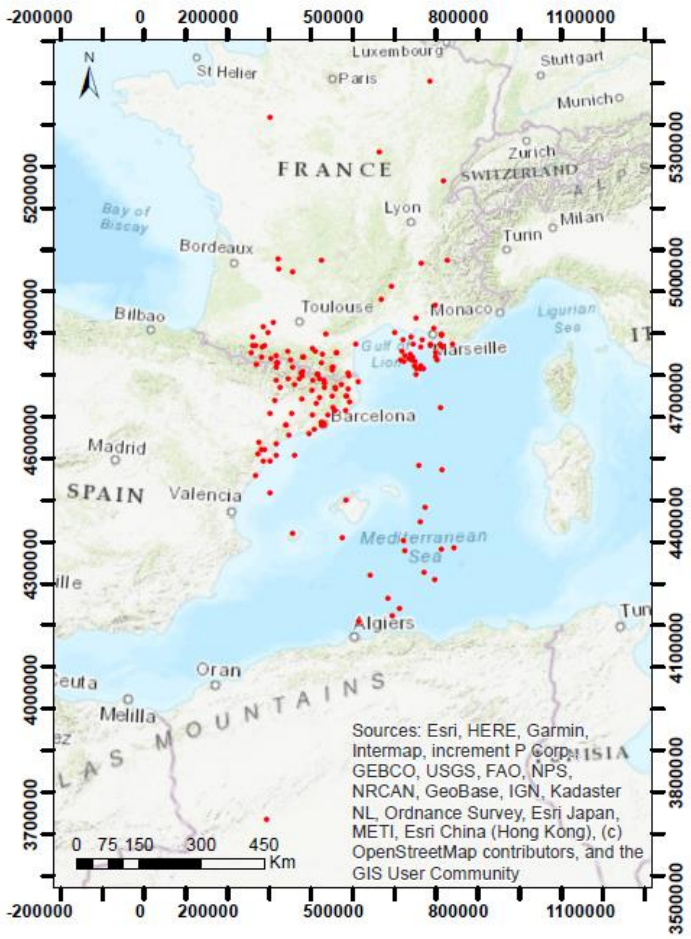

Fig. 2.2. Mapa de distribució de les estacions (punts vermells) utilitzades en el procés de relocalització dels terratrèmols. Un llistat amb les coordenades i nom de cada estació està inclòs dins l'script de l'Annex 3.

ANNEX 3. Script utilitzat per dur a terme la relocalització dels sismes (*NonLinLoc*)

```
# ================================================================================================================
# Generic control file statements
# ================================================================================
#
# CONTROL - Control
# required, non-repeatable
# Syntax 1: CONTROL messageFlag randomNumberSeed
# Sets various general program control parameters.
#
#    messageFlag (integer, min:-1, default:1) sets the verbosity level for messages printed to the terminal ( -1 = completely silent, 0 = error messages only, 1 = 0 + higher-level warning and progress messages, 2 and higher = 1 + lower-level warning and progress messages + information messages, ...)
#     randomNumberSeed (integer) integer seed value for generating random number sequences (used by program NLLoc to generate Metropolis samples and by program Time2EQ to generate noisy time picks)
#
CONTROL 1 54321   #aquest valor no ha estat modificat, s'ha deixat com venia en el fitxer de prova
#
# TRANS - Geographic Transformation
# required, non-repeatable
# Syntax 1: TRANS GLOBAL
# Syntax 2: TRANS SIMPLE latOrig longOrig rotAngle
# Syntax 3: TRANS NONE
# Syntax 4: TRANS SDC latOrig longOrig rotAngle
# Syntax 5: TRANS LAMBERT refEllipsoid latOrig longOrig firstStdParal secondStdParal rotAngle
# Syntax 6: TRANS TRANS_MERC refEllipsoid latOrig longOrig rotAngle
# Syntax 7: TRANS AZIMUTHAL_EQUIDIST refEllipsoid latOrig longOrig rotAngle
# Sets geographic to working coordinates transformation parameters. The GLOBAL option sets spherical regional/teleseismic mode, with no geographic transformation - most position values are input and used directly as latitude and longitude in degrees. The SIMPLE, SDC, LAMBERT and TRANS_MERC options make transformations of geographic coordinates into a Cartesian/rectangular system. The NONE transformation performs no geographic conversion.
#
#    latOrig (float, min:-90.0, max:90.0) latitude in decimal degrees of the rectangular coordinates origin
#    longOrig (float, min:-180.0, max:180.0) longitude in decimal degrees of the rectangular coordinates origin
#    rotAngle (float, min:-360.0, max:360.0) rotation angle of geographic north in degrees clockwise relative to the rectangular coordinates system Y-axis
#    refEllipsoid (choice: WGS-84 GRS-80 WGS-72 Australian Krasovsky International Hayford-1909 Clarke-1880 Clarke-1866 Airy Bessel Hayford-1830 Sphere) reference ellipsoid name
#    latOrig (float, min:-90.0, max:90.0) latitude in decimal degrees of the rectangular coordinates origin
#    longOrig (float, min:-180.0, max:180.0) longitude in decimal degrees of the rectangular coordinates origin
#    firstStdParal secondStdParal (float, min:-90.0, max:90.0) first and second standard parallels (meridians) in decimal degrees
#    rotAngle (float, min:-360.0, max:360.0) rotation angle of geographic north in degrees clockwise relative to the rectangular coordinates system Y-axis
#
# Alt Urgell - Andorra
TRANS  LAMBERT  WGS-84  40.0 -1.0  39.0 41.0  0.0
#
#
# MAPLINE - Geographic Maplines
# optional, repeatable
# Syntax 1: MAPLINE formatType name red green blue lineStyle
# Specifies a file and drawing parameters for geographic line data.
#
#    formatType (choice: GMT_LATLON GMT_LONLAT XY_LONLAT GMT_LONLATDEPTH GMT_LONLATELEV_M GMT_GRD) line file format or GMT grd file format
#    name (string) full path and file name
#    red green blue (float, min:0.0, max:1.0) red, green and blue intensities (0.0-1.0) (not implemented)
#    lineStyle (choice: SOLID DASHED DOTTED DASHDOT) line style (not implemented)
#
# Alt Urgell - Andorra
MAPLINE  GMT_LONLAT ./data_geog/frontera.xy  0.0 0.0 0.0  SOLID
MAPLINE  GMT_LONLAT ./data_geog/comarques_cat.xy 0.0 0.0 0.0  SOLID
MAPLINE  GMT_LONLAT ./data_geog/dept_fr.xy 0.0 0.0 0.0  SOLID
MAPLINE  GMT_LONLAT ./data_geog/parroquies_and.xy 0.0 0.0 0.0  SOLID
#
# ================================================================================
# END of Generic control file statements
# ================================================================================================================

# ================================================================================================================
# Vel2Grid control file statements
# ================================================================================

# VGOUT - Output File Root Name
# required, non-repeatable
```

```
# Syntax 1: VGOUT fileRoot
# Specifies the directory path and file root name (no extension) for the output velocity grid.
#
#    fileRoot (string) full or relative path and file root name (no extension) for output
#
VGOUT  ./model/layer

#  VGTYPE - Wave Type
# required, repeatable
# Syntax 1: VGTYPE waveType
# Specifies the physical wave type for a velocity grid.
#
#    waveType (choice: P S) wave type
#
VGTYPE P
VGTYPE S

# VGGRID - Grid Description
# required, non-repeatable
# Syntax 1: VGGRID xNum yNum zNum xOrig yOrig zOrig dx dy dz gridType
# Specifies the size and type of the 3D velocity grid.
#
#    xNum yNum zNum (integer, min:2) number of grid nodes in the x, y and z directions
#    xOrig yOrig zOrig (float) x, y and z location of the grid origin in km relative to the geographic origin.
#    dx dy dz (float) grid node spacing in kilometers along the x, y and z axes
#    gridType (choice: VELOCITY VELOCITY_METERS SLOWNESS VEL2 SLOW2 SLOW_2_METERS SLOW_LEN) physical quantity to store
on grid ( VELOCITY = km/s, VELOCITY_METERS = m/s, SLOWNESS = s/km, VEL2 = vel**2, SLOW2 = (s/km)**2, SLOW_2_METERS =
slow**2 ((s/m)**2), SLOW_LEN = slow*dx (sec)).
#
# Layer 2DGrid (NOTE: num_grid_x must be = 2 for 2D grids)
#
# Grid Alt Urgell - Andorra
#
VGGRID  2 601 106  0.0 0.0 -2.0  1.0 1.0 1.0  SLOW_LEN # malla de cerca de 600km de distancia i des de -2km fins 100km de profunditat

# ----------------------------------------------------------------------------
# velocity model description
# ----------------------------------------------------------------------------
#
#LAYER - Velocity Model - Layer
# optional, repeatable
# Syntax 1: LAYER depth VpTop VpGrad VsTop VsGrad rhoTop rhoGrad
# Specifies a constant or gradient velocity layer.
#
#    depth (float) depth to top of layer (use negative values for layers above z=0)
#    VpTop VsTop rhoTop (float) P velocity, and S velocity in km/s and density in kg/m**3 at the top of the layer.
#    VpGrad VsGrad rhoGrad (float) Linear P velocity and S velocity gradients in km/s/km and density gradient in kg/m**3/km increasing directly
downwards from the top of the layer.

# MODEL CATALUNYA
#LAYER depth Vp_top Vp_grad Vs_top Vs_grad p_top p_grad
LAYER    0.0    5.50   0   3.14   0   2.30   0
LAYER    1.0    5.60   0   3.20   0   2.50   0
LAYER    4.0    6.10   0   3.49   0   2.70   0
LAYER   11.0    6.40   0   3.66   0   3.00   0
LAYER   34.0    8.00   0   4.57   0   3.40   0
LAYER   70.0    8.20   0   4.69   0   3.40   0
#

# ============================================================================
# END of Vel2Grid control file statements
# ============================================================================================================

# ============================================================================================================
# Grid2Time control file statements
# ============================================================================

# GTFILES - Input and Output File Root Name
# required, non-repeatable
# Syntax 1: GTFILES ttimeFileRoot outputFileRoot waveType iSwapBytesOnInput
# Specifies the directory path and file root name (no extension), and the wave type identifier for the input velocity grid and output time grids.
#
#    ttimeFileRoot (string) full or relative path and file root name (no extension) for input velocity grid (generated by program Vel2Grid)
#    outputFileRoot (string) full or relative path and file root name (no extension) for output travel-time and take-off angle grids
#    waveType (choice: P S) wave type
#    iSwapBytesOnInput (integer, min:0, max:1, default:0) flag to indicate if hi and low bytes of input velocity grid file should be swapped

#cal fer córrer Grid2Time 2 vegades per tal de generar tant els temps de trajecte P com S (canviar el #)
```

```
#GTFILES  ./model/layer  ./time/layer P        # descomentar per generar temps de trajecte P
GTFILES  ./model/layer  ./time/layer S         # descomentar per generar temps de trajecte S

# GTMODE - Program Modes
# required, non-repeatable
# Syntax 1: GTMODE gridMode angleMode
# Specifies several program run modes.
#
#    gridMode (choice: GRID3D GRID2D) grid type ( GRID3D for a 3D, Nx*Ny*Nz grid or GRID2D for a 2D, 2*Ny*Nz grid)
#    angleMode (choice: ANGLES_YES ANGLES_NO) sets if take-off angles are calculated and an angles grid is output ( ANGLES_YES for angles calulcation or ANGLES_NO for no angles calculation)
#
GTMODE GRID2D ANGLES_YES

# ----------------------------------------------------------------------------
# description of source (e.g. seismic station) for calculating travel-time field
# ----------------------------------------------------------------------------
#
# GTSRCE - Source Description
# required, repeatable
# Syntax 1: GTSRCE label XYZ xSrce ySrce zSrce elev
# Syntax 2: GTSRCE label LATLON latSrce longSrce zSrce elev
# Syntax 3: GTSRCE label LATLONDM latDegSrce latMinSrce latDir longDegSrce longMinSrce longDir zSrce elev
# Syntax 4: GTSRCE label LATLONDS latDegSrce latMinSrce latSecSrce latDir longDegSrce longMinSrce longSecSrce longDir zSrce elev
# Specifies a source location. One time grid and one angles grid (if requested) will be generated for each source. Four formats are supported: XYZ (rectangular grid coordinates), LATLON (decimal degrees for latitude/longitude), LATLONDM (degrees + decimal minutes for latitude/longitude) and LATLONDS (degrees + minutes + decimal seconds for latitude/longitude).
#
#    label (string) source label ( i.e. a station code: ABC )
#    xSrce ySrce (float) x and y grid positions relative to geographic origin in kilometers for source
#    zSrce (float) z grid position (depth, positive DOWN) in kilometers for source
#    elev (float) elevation above z grid position (positive UP) in kilometers for source
#    latSrce (float, min:-90.0, max:90.0) latitude in decimal degrees for source (pos = North)
#    longSrce (float, min:-180.0, max:180.0) longitude in decimal degrees for source (pos = East)
#    latDegSrce latMinSrce latSecSrce (float) latitude degrees, minutes and seconds for source
#    longDegSrce longMinSrce longSecSrce (float) longitude degrees, minutes and seconds for source
#    latDir (choice: N S) geographic direction
#    longDir (choice: W E) geographic direction
#
#LLISTAT D'ESTACIONS
#
GTSRCE  ARBS  LATLON  42.434492  1.533754  0.030  2.145
GTSRCE  AVIN  LATLON  41.84381  1.96546  0  0.334
GTSRCE  BAIN  LATLON  41.396  2.173  0  0.022
GTSRCE  BAJU  LATLON  41.3853  2.1741  0  0.025
GTSRCE  BLAN  LATLON  41.683943  2.794193  0  0.02
GTSRCE  CADI  LATLON  42.339338  1.834878  0  1.207
GTSRCE  CARA  LATLON  42.707643  0.818132  0.027  1.627
GTSRCE  CAVN  LATLON  41.881578  0.750608  0  0.634
GTSRCE  CBEU  LATLON  42.255629  2.675797  0  0.824
GTSRCE  CBRU  LATLON  42.284408  2.179001  0  1.327
GTSRCE  CBUD  LATLON  40.7044  0.8263  0  0.005
GTSRCE  CCAS  LATLON  41.8829  2.9041  0  0.197
GTSRCE  CELO  LATLON  41.689636  2.492565  0  0.151
GTSRCE  CESP  LATLON  42.115731  1.812576  0  1.143
GTSRCE  CEST  LATLON  42.598651  1.254059  0  1.325
GTSRCE  CFAR  LATLON  40.5604  0.6614  0  0.002
GTSRCE  CFON  LATLON  41.761185  2.434581  0  0.973
GTSRCE  CGAL  LATLON  42.147989  2.875196  0  0.132
GTSRCE  CGAR  LATLON  41.293309  1.913703  0.0005  0.584
GTSRCE  CGIR  LATLON  41.986  2.8278  0  0.102
GTSRCE  CGIS  LATLON  41.98088  2.82158  0  0.07
GTSRCE  CGRN  LATLON  41.607  2.2884  0  0.153
GTSRCE  CGRY  LATLON  41.62369  1.246901  0  0.596
GTSRCE  CLLI  LATLON  42.478105  1.972973  0  1.413
GTSRCE  CLLI  LATLON  42.478109  1.972966  0  1.413
GTSRCE  CMAS  LATLON  40.72568  0.313875  0  0.53
GTSRCE  CMON  LATLON  41.593324  1.836294  0  0.73
GTSRCE  COBS  LATLON  40.7141  1.3573  0  -0.16
GTSRCE  CORG  LATLON  42.229088  1.316531  0  0.72
GTSRCE  CORI  LATLON  41.972401  2.048795  0  0.621
GTSRCE  CPAL  LATLON  42.310533  3.16244  0  0.212
GTSRCE  CSOR  LATLON  42.374429  1.132743  0  1.227
GTSRCE  CTAV  LATLON  41.996678  2.418428  0  0.857
GTSRCE  CTRE  LATLON  42.322275  0.77236  0  1.318
GTSRCE  CTRM  LATLON  42.160858  0.893644  0  0.44
GTSRCE  FBR  LATLON  41.41839  2.123961  0  0.405
GTSRCE  ICJA  LATLON  41.3844  2.1189  0  0.105
```

```
GTSRCE ILER LATLON 41.6153 0.6262 0 0.171
GTSRCE LLIS LATLON 42.4626 1.9783 0 1.198
GTSRCE MTJR LATLON 41.37007 2.15608 0 0.051
GTSRCE OLOS LATLON 42.18145 2.48925 0 0.436
GTSRCE POBL LATLON 41.379251 1.083477 0 0.5
GTSRCE REUS LATLON 41.134825 1.185893 0 0.048
GTSRCE SCOL LATLON 42.493015 1.496256 0 0.961
GTSRCE VAN2 LATLON 40.953213 0.826602 0 0.165
GTSRCE VIER LATLON 42.706473 0.786306 0 1.116
GTSRCE VIES LATLON 42.7016 0.7969 0 0.986
GTSRCE VNIG LATLON 41.182117 1.752517 0 -0.02
GTSRCE ALCN LATLON 40.5593 0.4809 0 0.177
GTSRCE ALCX LATLON 40.2612 0.2669 0 0.288
GTSRCE EBR LATLON 40.820167 0.49394 0 0.036
GTSRCE EROQ LATLON 40.8232 0.40883 0 0.284
GTSRCE AFON LATLON 38.6649 -0.5412 0 1.062
GTSRCE EALK LATLON 43.2197 -1.5071 0 0.965
GTSRCE EARA LATLON 42.7727 -1.5797 0 0.476
GTSRCE EBEN2 LATLON 38.6763 -0.1904 0 0.42
GTSRCE ECHE LATLON 39.5908 -0.9677 0 0.643
GTSRCE ECHI LATLON 42.6646 0.1946 0 1.45
GTSRCE ECOL LATLON 39.8986 0.6848 0 0
GTSRCE EIBI LATLON 39.0269 1.3436 0 0.26
GTSRCE EJON LATLON 42.4487 2.8886 0 0.57
GTSRCE EMIR LATLON 41.9144 1.5258 0 0.841
GTSRCE EMOS LATLON 40.3639 -0.4721 0 1.694
GTSRCE EORO LATLON 42.8926 -1.3095 0 0.88
GTSRCE EPOB LATLON 41.3527 1.0786 0 0.89
GTSRCE ERTA LATLON 40.9567 0.3335 0 0.547
GTSRCE ESAC LATLON 41.7219 -0.4693 0 0.815
GTSRCE ETOB LATLON 38.6447 -1.5478 0 0.855
GTSRCE ETOS LATLON 39.7678 2.8144 0 0.48
GTSRCE ETRV LATLON 38.0203 -0.7627 0 0.039
GTSRCE EVIV LATLON 39.2669 -1.1184 0 0.609
GTSRCE EXQUE LATLON 42.348421 2.162662 0 1.2
GTSRCE EXRIP LATLON 42.2 2.1886 0 0.687
GTSRCE EXSEU LATLON 42.357977 1.459861 0 0.693
GTSRCE EXVI3 LATLON 42.621442 0.76514 0 1.582
GTSRCE E0901 LATLON 40.4806 -1.1279 0 1.176
GTSRCE IELO LATLON 42.8432 -1.2366 0 0.819
GTSRCE IEPA LATLON 42.7794 -1.2669 0 0.769
GTSRCE IPRE LATLON 42.8047 -1.3569 0 0.531
GTSRCE IUNC LATLON 42.7559 -1.4989 0 0.766
GTSRCE IUSE LATLON 42.9469 -1.5478 0 0.87
GTSRCE IZUN LATLON 42.861 -1.4564 0 0.701
GTSRCE YARA LATLON 42.6477 -1.1902 0 1.303
GTSRCE YASP LATLON 42.7292 -1.1634 0 0.692
GTSRCE YBER LATLON 42.581 -0.9182 0 0.632
GTSRCE YMUS LATLON 42.5838 -1.0202 0 0.594
GTSRCE YSIG LATLON 42.6396 -0.9946 0 0.776
GTSRCE YSOS LATLON 42.4554 -1.147 0 0.881
GTSRCE YUND LATLON 42.5768 -1.1331 0 0.872
GTSRCE ZVGAR LATLON 42.143052 2.510075 0.013 0.55
GTSRCE ATE LATLON 43.0858 -0.7003 0 0.48
GTSRCE BANN LATLON 44.3689 4.1563 0 0.447
GTSRCE CARF LATLON 42.7149 2.1046 0 1.22
GTSRCE CLAF LATLON 43.1350 3.0900 0 0.115
GTSRCE DUNF LATLON 43.025 1.809 0 0.39
GTSRCE ETSF LATLON 42.89861 -0.55917 0 0.91
GTSRCE FDAF LATLON 42.81883 -0.56717 0 1.23
GTSRCE FILF LATLON 42.5602 2.4171 0 0.85
GTSRCE FMON LATLON 43.062352 0.415193 0 0.616
GTSRCE FNEB LATLON 42.9031 2.1064 0 0.6
GTSRCE GENF LATLON 42.8233 1.5723 0 0.96
GTSRCE GRBF LATLON 42.8413 1.5367 0 0.878
GTSRCE JAU LATLON 43.038 -0.36933 0 1.545
GTSRCE LABF LATLON 43.0459 0.0727 0 0.756
GTSRCE LARF LATLON 43.038 -0.9875 0 0.67
GTSRCE LASF LATLON 44.0761 3.857 0 0.52
GTSRCE LFF LATLON 44.9395 0.74017 0 0.2
GTSRCE LPEF LATLON 42.9485 1.90767 0 0.44
GTSRCE LPO LATLON 44.6831 1.18694 0 0.33
GTSRCE LRDF LATLON 42.93783 2.53867 0 0.4
GTSRCE MELF LATLON 42.87269 0.75919 0 0.94
GTSRCE MLS LATLON 42.956 1.095 0 0.45
GTSRCE MTHF LATLON 42.9386 2.53389 0 0.62
GTSRCE ORDF LATLON 43.2135 -0.93569 0 0.27
GTSRCE OSSF LATLON 43.256 -1.2618 0 0.24
```

```
GTSRCE  PAND  LATLON  42.5237  1.5461  0  1.84
GTSRCE  PYLO  LATLON  43.0969  -0.04925  0  0.41
GTSRCE  RESF  LATLON  42.808  0.339  0  1.27
GTSRCE  REYF  LATLON  43.0683  -0.3933  0  0.770
GTSRCE  SALF  LATLON  42.7589  1.1884  0  0.903
GTSRCE  SJAF  LATLON  42.4845  2.88217  0  0.45
GTSRCE  SJPF  LATLON  43.11333  -1.225  0  0.45
GTSRCE  TERF  LATLON  43.6788  -1.1132  0  0.035
GTSRCE  URDF  LATLON  43.4383  -0.5931  0  0.12
GTSRCE  VALC  LATLON  42.387612  2.040357  0  1.56
GTSRCE  VIEF  LATLON  42.8825  0.0229  0  1
GTSRCE  CANF  LATLON  42.763652  -0.517495  0  1.206
GTSRCE  EPF  LATLON  43.0308  0.34  0  0.75
GTSRCE  PYAD  LATLON  43.0975  -0.425833  0  0.48
GTSRCE  PYAT  LATLON  43.095333  -0.711333  0  0.36
GTSRCE  PYBB  LATLON  43.058667  0.148833  0  0.6
GTSRCE  PYHE  LATLON  43.3775  -1.749333  0  1.08
GTSRCE  PYLU  LATLON  42.790667  0.601333  0  0.6
GTSRCE  PYPC  LATLON  43.296333  -0.374  0  0.18
GTSRCE  PYPD  LATLON  42.6142  2.4156  0  0.42
GTSRCE  PYPR  LATLON  42.613667  2.429333  0  0.42
GTSRCE  PYPU  LATLON  43.314833  -0.365667  0  0.18
GTSRCE  PYTB  LATLON  43.226833  0.049667  0  0.3
GTSRCE  CAF  LATLON  44.9258  2.06444  0  0.63
GTSRCE  MTLF  LATLON  43.34111  2.2175  0  0.365
GTSRCE  FLN  LATLON  48.7625  -0.48194  0  0.24
GTSRCE  FRF  LATLON  43.5607  6.64678  0  0.31
GTSRCE  HAU  LATLON  48.006  6.348  0  0.577
GTSRCE  LMR  LATLON  43.3339  6.50917  0  0.2
GTSRCE  LRG  LATLON  43.4547  6.36028  0  0.11
GTSRCE  MBDF  LATLON  44.72694  6.77139  0  1.52
GTSRCE  OGCB  LATLON  44.850137  5.096536  0  0.738
GTSRCE  RUSF  LATLON  43.9363  5.4656  0  0.464
GTSRCE  PBAR  LATLON  38.175  -7.039  0  0.205
GTSRCE  PBDV  LATLON  37.243  -7.9312  0  0.471
GTSRCE  PCVE  LATLON  37.632  -8.039  0  0.235
GTSRCE  PESTR  LATLON  38.8672  -7.5902  0  0.41
GTSRCE  PFVI  LATLON  37.13281  -8.82681  0  0
GTSRCE  PMAFR  LATLON  38.9554  -9.2827  0  0.329
GTSRCE  PMOZ  LATLON  32.823  -17.197  0  1.027
GTSRCE  PNCL  LATLON  38.1118  -8.5289  0  0.12
GTSRCE  PVAQ  LATLON  37.4037  -7.7173  0  0.2
GTSRCE  LOR  LATLON  47.2683  3.8589  0  0.52
GTSRCE  MFF  LATLON  46.6022  -0.14583  0  0
GTSRCE  ORIF  LATLON  44.9183  5.88  0  1.08

# GT_PLFD - Podvin and Lecomte Finite Difference
# required, non-repeatable, for Podvin and Lecomte finite difference, must not be present otherwise
# Syntax 1: GT_PLFD hs_eps_init message_flag
# Selects Podvin and Lecomte finite difference method and specifies method parameters.
#
#    hs_eps_init (float, min:0.0) fraction (typically 1.0E-3) defining the tolerated model inhomogeneity for exact initialization. A tolerance larger than
0.01 will potentially create errors larger than those involved by the F.D. scheme without any exact initialization.
#    message_flag (integer, min:0, max:2) Message flag (0:silent, 1:few messages, 2:verbose) A negative value inhibits "clever" initialization.
#
GT_PLFD  1.0e-3  0

# ============================================================================
# END of Grid2Time control file statements
# ============================================================================================================

# ============================================================================================================
# NLLoc control file statements
# ============================================================================

# LOCSIG - Signature text
# optional, non-repeatable
# Syntax 1: LOCSIG signature
# Identification of an individual, institiution or other entity - written in some output files.
#
#    signature (line) signature text
#
LOCSIG NonLinLoc - ALomax Scientific


# LOCCOM - Comment text
# optional, non-repeatable
# Syntax 1: LOCCOM comment
```

```
# Comment about location run - written in some output files.
#
LOCCOM 2021-2023 Sismes Alt Urgell - Andorra (NonLinLoc Sample Location)

# LOCFILES - Input and Output File Root Name
# required, non-repeatable
# Syntax 1: LOCFILES obsFiles obsFileType ttimeFileRoot outputFileRoot iSwapBytes
# Specifies the directory path and filename for the phase/observation files, and the file root names (no extension) for the input time grids and the output files.
#
#    obsFiles (string) full or relative path and name for phase/observations files, mulitple files may be specified with standard UNIX "wild-card" characters ( * and ? )
#    obsFileType (choice: NLLOC_OBS HYPO71 HYPOELLIPSE NEIC CSEM_ALERT SIMULPS HYPOCENTER HYPODD SEISAN NORDIC NCSN_Y2K_5 NCEDC_UCB ETH_LOC RENASS_WWW RENASS_DEP INGV_BOLL INGV_BOLL_LOCAL INGV_ARCH) format type for phase/observations files (see Phase File Formats)
#       ttimeFileRoot (string) full or relative path and file root name (no extension) for input time grids (generated by program Grid2Time, edu.sc.seis.TauP.TauP_Table_NLL, or other software.
#    outputFileRoot (string) full or relative path and file root name (no extension) for output files
#    iSwapBytes (integer, min:0, max:1, default:0) flag to indicate if hi and low bytes of input time grid files should be swapped. Allows reading of travel-time grids from different computer architecture platforms during TRANS GLOBAL mode location.
#
#LOCFILES ./obs/2018-11-30-mww70-southern-alaska.obs NLLOC_OBS  ./time/layer  ./loc/alaska
#LOCFILES ./obs/Llistat_20210201-20230331_rectangle_Alt_Urgell_ok.nor NORDIC  ./time/layer  ./loc/Alt_Urgell  #1a passada
LOCFILES ./obs/Llistat_20210201-20230331_rectangle_Alt_Urgell_ok.nor NORDIC  ./time/layer  ./loc_corr/Alt_Urgell  #2a passada
#en la 1a passada els fitxers de sortida es guarden en la carpeta loc; en la segona, a la carpeta loc_corr. Cal fer córrer doncs NLLoc 2 vegades també, i canviar el #.

# LOCHYPOUT - Output File Types
# optional, non-repeatable
# Syntax 1: LOCHYPOUT fileType1 ... ... ... ... ...
# Specifies the filetypes to be used for output.
#
#          fileType1 ... fileTypeN (choice: SAVE_NLLOC_ALL SAVE_NLLOC_SUM NLL_FORMAT_VER_2 FILENAME_DEC_SEC SAVE_NLLOC_EXPECTATION SAVE_NLLOC_OCTREE SAVE_FMAMP SAVE_HYPOELL_ALL SAVE_HYPOELL_SUM SAVE_HYPO71_ALL SAVE_HYPO71_SUM SAVE_HYPOINV_SUM SAVE_HYPOINVERSE_Y2000_ARC SAVE_NLLOC_OCTREE, default:SAVE_NLLOC_ALL SAVE_HYPOINVERSE_Y2000_ARC) File format types to be output: SAVE_NLLOC_ALL = save summary and event files of type NLLoc Hypocenter-Phase file , Phase Statistics file , Scatter file and Confidence Level file ; SAVE_NLLOC_SUM = save summary file only of type NLLoc Hypocenter-Phase file ; NLL_FORMAT_VER_2 = save NLLoc Hypocenter-Phase files in new format (WARNING: this new output format is currently under development and subject to modification.) NLLoc Hypocenter-Phase file , Phase Statistics file , Scatter file and Confidence Level file ; FILENAME_DEC_SEC = output file named with 2 decimal second precision instead of default integer second precision - avoids overwriting of output files for multiple events or multiple locations with earliest observation time in same second ; SAVE_NLLOC_EXPECTATION = hypocenter, location statistics and phase statistics results are based on expectation hypocenter instead of maximum likelihood hypocenter (default) NLLoc Hypocenter-Phase file ; SAVE_NLLOC_OCTREE = saving of oct-tree structure to disk file when LOCSEARCH OCT used ); SAVE_FMAMP = saving of fmamp hypocenter-phase file for input to fmamp, probabilistic first-motion mechanism program ); SAVE_HYPOELL_ALL = save summary and event files of type Quasi-HYPOELLIPSE file ; SAVE_HYPOELL_SUM = save summary file only of type Quasi-HYPOELLIPSE file ; SAVE_HYPO71_ALL = save summary and event files of type HYPO71 Hypocenter/Station file ; SAVE_HYPO71_SUM = save summary file only of type HYPO71 Hypocenter/Station file ; SAVE_HYPOINV_SUM = save summary file only of type HypoInverse Archive file ; SAVE_HYPOINVERSE_Y2000_ARC = save summary file only of type HypoInverse Y2000 Archive file ;
#
#fitxers de sortida i estadístics que volem que es generin
LOCHYPOUT SAVE_HYPO71_SUM SAVE_HYPOELL_SUM SAVE_NLLOC_ALL NLL_FORMAT_VER_2 SAVE_HYPOINV_SUM

# LOCSEARCH - Search Type
# required, non-repeatable
# Syntax 1: LOCSEARCH GRID numSamplesDraw
# Syntax 2: LOCSEARCH MET numSamples numLearn numEquil numBeginSave numSkip stepInit stepMin stepFact probMin
# Syntax 3: LOCSEARCH OCT initNumCells_x initNumCells_y initNumCells_z minNodeSize maxNumNodes numScatter useStationsDensity stopOnMinNodeSize
# Specifies the search type and search parameters. The possible search types are GRID (grid search), MET (Metropolis), and OCT (Octtree).
#    numSamplesDraw (integer) specifies the number of scatter samples to draw from each saved PDF grid ( i.e. grid with gridType = PROB_DENSITY and saveFlag = SAVE ) No samples are drawn if saveFlag < 0.
#    numSamples (integer, min:0) total number of accepted samples to obtain
#    numLearn (integer, min:0) number of accepted samples for learning stage of search
#    numEquil (integer, min:0) number of accepted samples for equilibration stage of search
#    numBeginSave (integer, min:0) number of accepted samples after which to begin saving stage of search, denotes end of equilibration stage
#    numSkip (integer, min:1) number of accepted samples to skip between saves ( numSkip = 1 saves every accepted sample)
#     stepInit (float) initial step size in km for the learning stage ( stepInit < 0.0 gives automatic step size selection. If the search takes too long, the initial step size may be too large; this may be the case if the search region is very large relative to the volume of the high confidence region for the locations.)
#    stepMin (float, min:0.0) minimum step size allowed during any search stage (This parameter should not be critical, set it to a low value.)
#    stepFact (float, min:0.0) step factor for scaling step size during equilibration stage (Try a value of 8.0 to start.)
#     probMin (float) minimum value of the maximum probability (likelihood) that must be found by the end of learning stage, if this value is not reached the search is aborted (This parameters allows the filtering of locations outside of the search grid and locations with large residuals.)
#    initNumCells_x initNumCells_y initNumCells_z (integer) initial number of octtree cells in the x, y, and z directions
#    minNodeSize (float) smallest octtree node side length to process, the octree search is terminated after a node with a side smaller than this length is generated
#    maxNumNodes (integer) total number of nodes to process
#    numScatter (integer) the number of scatter samples to draw from the octtree results
```

```
#    useStationsDensity (integer, min:0, max:1, default:0) flag, if 1 weights oct-tree cell probability values used for subdivide decision in proportion to number of stations in oct-tree cell; gives higher search priority to cells containing stations, stablises convergence to local events when global search used with dense cluster of local stations
#    stopOnMinNodeSize (integer, min:0, max:1, default:1) flag, if 1, stop search when first min_node_size reached, if 0 stop subdividing a given cell when min_node_size reached
#
#LOCSEARCH  OCT 10 10 4 0.01 20000 5000 0 1 #prova amb meitat nodes maxims
LOCSEARCH  OCT 10 10 4 0.01 40000 5000 0 1 #congifuracio inicial i funciona be
#LOCSEARCH  OCT 20 20 8 0.005 80000 5000 0 1 #prova amb doble nodes maxims i meitat mida nodes

# LOCGRID - Search Grid Description
# required, repeatable
# Syntax 1: LOCGRID xNum yNum zNum xOrig yOrig zOrig dx dy dz gridType saveFlag
# Specifies the size and other parameters of an initial or nested 3D search grid. The order of LOCGRID statements is critical (see Notes).
#    xNum yNum zNum (integer, min:2) number of grid nodes in the x, y and z directions
#    xOrig yOrig zOrig (float) x, y and z location of the grid origin in km relative to the geographic origin. Use a large, negative value ( i.e. -1.0e30 ) to indicate automatic positioning of grid along corressponding direction (valid for nested grids only, may not be used for initial grid).
#    dx dy dz (float) grid node spacing in kilometers along the x, y and z axes
#    gridType (choice: MISFIT PROB_DENSITY) statistical quantity to calculate on grid
#    saveFlag (choice: SAVE NO_SAVE) specifies if the results of the search over this grid should be saved to disk
#
#LOCGRID  351 351 66  10.0 10.0 -5.0  1.0 1.0 1.0   PROB_DENSITY  SAVE  #FUNCIONA BÉ PER A TOT CATALUNYA
LOCGRID  51 51 46  180.0 260.0 -2.0  1.0 1.0 1.0   PROB_DENSITY  SAVE   #ZONA ESTUDI ZOOM amb prof minima -2km

# LOCMETH - Location Method
# required, non-repeatable
# Syntax 1: LOCMETH method maxDistStaGrid minNumberPhases maxNumberPhases minNumberSphases VpVsRatio maxNum3DGridMemory minDistStaGrid iRejectDuplicateArrivals
# Specifies the location method (algorithm) and method parameters.
#
#    method (choice: GAU_ANALYTIC EDT EDT_OT_WT EDT_OT_WT_ML) location method/algorithm ( GAU_ANALYTIC = the inversion approach of Tarantola and Valette (1982) with L2-RMS likelihood function. EDT = Equal Differential Time likelihood function cast into the inversion approach of Tarantola and Valette (1982) EDT_OT_WT = Weights EDT-sum probabilities by the variance of origin-time estimates over all pairs of readings. This reduces the probability (PDF values) at points with inconsistent OT estimates, and leads to more compact location PDF's. EDT_OT_WT_ML = version of EDT_OT_WT with EDT origin-time weighting applied using a grid-search, maximum-likelihood estimate of the origin time. Less efficient than EDT_OT_WT which uses simple statistical estimate of the origin time.)
#    maxDistStaGrid (float) maximum distance in km between a station and the center of the initial search grid; phases from stations beyond this distance will not be used for event location
#    minNumberPhases (integer) minimum number of phases that must be accepted before event will be located
#    maxNumberPhases (integer) maximum number of accepted phases that will be used for event location; only the first maxNumberPhases read from the phase/observations file are used for location
#    minNumberSphases (integer) minimum number of S phases that must be accepted before event will be located
#    VpVsRatio (float) P velocity to S velocity ratio. If VpVsRatio > 0.0 then only P phase travel-times grids are read and VpVsRatio is used to calculate S phase travel-times. If VpVsRatio < 0.0 then S phase travel-times grids are used.
#    maxNum3DGridMemory (integer) maximum number of 3D travel-time grids to attempt to read into memory for Metropolis-Gibbs search. This helps to avoid time-consuming memory swapping that occurs if the total size of grids read exceeds the real memory of the computer. 3D grids not in memory are read directly from disk. If maxNum3DGridMemory < 0 then NLLoc attempts to read all grids into memory.
#    minDistStaGrid (float) minimum distance in km between a station and the center of the initial search grid; phases from stations closer than this distance will not be used for event location
#    iRejectDuplicateArrivals (int) flag indicating if duplicate arrivals used for location (1=reject, 0=use if time diff < sigma / 2); duplicate arrivals have same station label and phase name
#
LOCMETH EDT_OT_WT 9999.0 4 -1 -1 1.75 6 -1.0 1

# ============================================================
# fixed origin time
# (LOCFIXOTIME year month day hour min sec)
#    (int)   year month day hour min
#    (float)   sec
#LOCFIXOTIME 1995 04 21 08 02 57.09

# LOCGAU - Gaussian Model Errors
# required, non-repeatable
# Syntax 1: LOCGAU SigmaTime CorrLen
# Specifies parameters for Gaussian modelisation-error covariances Covariance ij between stations i and j using the relation ( Tarantola and Valette, 1982 ): Covariance ij = SigmaTime 2 exp(-0.5(Dist 2 ij )/ CorrLen 2 ) where Dist is the distance in km between stations i and j .
#
#    SigmaTime (float, min:0.0) typical error in seconds for travel-time to one station due to model errors
#    CorrLen (float, min:0.0) correllaton length that controls covariance between stations ( i.e. may be related to a characteristic scale length of the medium if variations on this scale are not included in the velocity model)
#
LOCGAU 0.2 0.0

# LOCGAU2 - Travel-Time Dependent Model Errors
# optional, non-repeatable
# Syntax 1: LOCGAU2 SigmaTfraction SigmaTmin SigmaTmax
# Specifies parameters for travel-time dependent modelisation-error. Sets the travel-time error in proportion to the travel-time, thus giving effectively a station-distance weighting, which was not included in the standard Tarantola and Valette formulation used by LOCGAU. This is important with
```

```
velocity model errors, because nearby stations would usually have less absolute error than very far stations, and in general it is probably more correct that travel-time error is a percentage of the travel-time. Preliminary results using LOCGAU2 indicate that this way of setting travel-time errors gives visible improvement in hypocenter clustering. (can currently only be used with the EDT location methods)
#
#    SigmaTfraction (float, min:0.0, max:1.0) fraction of of travel-time to use as error
#    SigmaTmin (float, min:0.0) minimum trave-time error in seconds
#    SigmaTmax (float, min:0.0) maximum trave-time error in seconds
#
LOCGAU2 0.02 0.05 2.0 #per defecte i funciona be
#LOCGAU2 0.04 0.05 2.0 #prova sigmaTfractionx2
#LOCGAU2 0.01 0.05 2.0 #prova sigmaTfraction/2

# LOCPHASEID - Phase Identifier Mapping
# optional, repeatable
# Syntax 1: LOCPHASEID stdPhase phaseCode1 ... ... ... ... ...
# Specifies the mapping of phase codes in the phase/observation file ( i.e. pg or Sn ) to standardized phase codes ( i.e. P or S ).
#
#    stdPhase (string) standardized phase code (used to generate time-grid file names)
#    phaseCode1 ... phaseCodeN (string) one or more phase codes that may be present in a phase/observation file that should be mapped to the stdPhase
#
LOCPHASEID  P   P p Pn Pg
LOCPHASEID  S   S s Sn Sg
#ToIgnoreS#LOCPHASEID  $   S s Sn Sg

# LOCQUAL2ERR - Quality to Error Mapping
# required, non-repeatable, for phase/observation file formats that do not include time uncertainties ; ignored, non-repeatable, otherwise
# Syntax 1: LOCQUAL2ERR Err0 ... ... ... ...
# Specifies the mapping of phase pick qualities phase/observation file ( i.e. 0,1,2,3 or 4 ) to time uncertainties in seconds ( i.e. 0.01 or 0.5 ).
#
#    Err0 ... ErrN (float, min:0.0) one time uncertainty value for each quality level that may be used in a phase/observation file. The first value Err0 is assigned to picks with quality 0 , the second to picks with quality 1 , etc.
#
# the following quality mapping is default from Hypoellipse documentation
LOCQUAL2ERR 0.1 0.5 1.0 2.0 99999.9

# LOCANGLES - Take-off Angles parameters
# optional, non-repeatable
# Syntax 1: LOCANGLES angleMode qualtiyMin
# Specifies whether to determine take-off angles for the maximum likelihood hypocenter and sets minimum quality cutoff for saving angles and corresponding phases to the HypoInverse Archive file .
#
#    angleMode (choice: ANGLES_YES ANGLES_NO, default:ANGLES_YES) sets if take-off angles are read from angles grid files and output to locations files. ( ANGLES_YES for angles determination or ANGLES_NO for no angles determination)
#    qualtiyMin (integer, default:5) sets the minimum quality (see Take-Off Angles Algorithm ) for writing take-off angles and corresponding phase to the HypoInverse Archive file . ( 0 to 10 )
#
LOCANGLES ANGLES_YES 5 #configuracio inicial no modificada

# LOCPHSTAT - Phase Statistics parameters
# optional, non-repeatable
# Syntax 1: LOCPHSTAT RMS_Max NRdgs_Min Gap_Max P_ResidualMax S_ResidualMax Ell_Len3_Max Hypo_Depth_Min Hypo_Depth_Max Hypo_Dist_Max
# Specifies selection criteria for phase residuals to be included in calculation of average P and S station residuals. The average residuals are saved to a summary, phase statistics file (see Phase Statistics file formats ).
#    RMS_Max (float, default:VERY_LARGE_DOUBLE) the maximum allowed hypocenter RMS in seconds
#    NRdgs_Min (integer, default:-1) the minimum allowed hypocenter number of readings
#    Gap_Max (float, default:VERY_LARGE_DOUBLE) the maximum allowed hypocenter gap in degrees
#    P_ResidualMax S_ResidualMax (float, default:VERY_LARGE_DOUBLE) the maximum allowed residual in seconds for a P or S phase
#    Ell_Len3_Max (float, default:VERY_LARGE_DOUBLE) the maximum allowed ellipsoid major semi-axis length (km)
#     Hypo_Depth_Min Hypo_Depth_Max (float, default:VERY_LARGE_DOUBLE) the minimum and maximum allowed maximum likelihood hypocenter depth (km)
#    Hypo_Dist_Max (float, default:VERY_LARGE_DOUBLE) the maximum allowed maximum likelihood hypocenter distance (km)
#
LOCPHSTAT 9999.0 -1 9999.0 1.0 1.0 9999.9 -9999.9 9999.9


INCLUDE loc/Alt_Urgell.sum.grid0.loc.stat_totcorr    #per incloure residuals estacions, utilitzar només per la 2a passada de NLLoc
#
# ================================================================================================================
# END of NLLoc control file statements
# ================================================================================================================
# ================================================================================================================
```

ANNEX 4. Resultats relocalització específics

Distribució epicentral

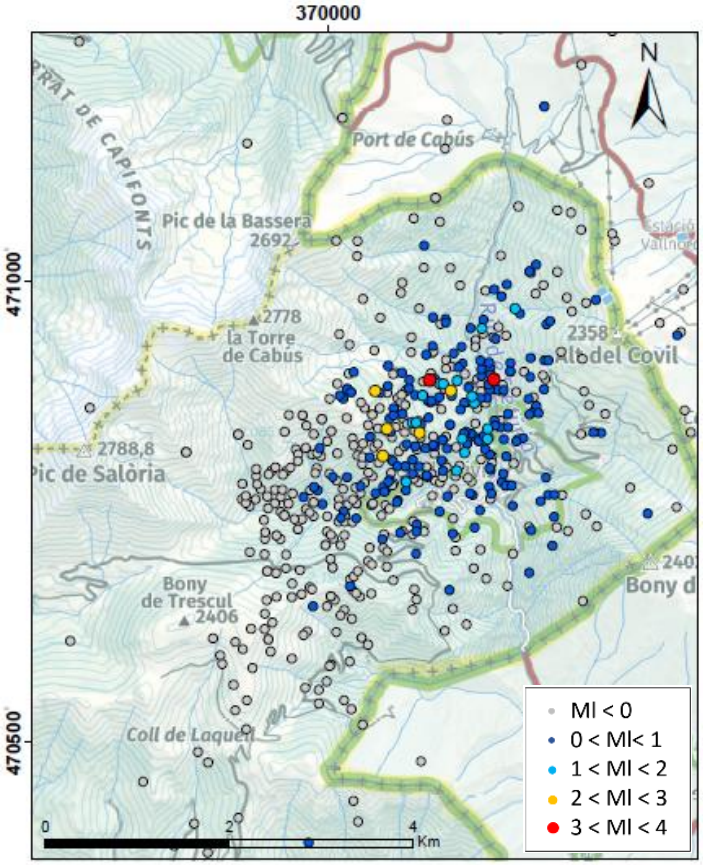

Fig. 4.1. Projecció dels sismes en planta, representats en diferent color en funció de la seva magnitud. Base: Mapa topogràfic 1:100.000 (ICGC).

Anàlisi de tota la sèrie sísmica (1 de febrer de 2021 a 31 de març de 2023)

Taula de resultats

DATE	LAT (º)	LON (º)	DEPTH (km)	NLECT	GAP (º)	RMS (s)	SEMEE (km)	VOL (km3)	MAG ICGC
20210215_2342	42.516	1.432	4.9	43	53	0.3	4.91	45	0.4
20210329_2142	42.516	1.435	6.8	63	81	0.1	2.52	9	1.3
20210416_0505	42.515	1.436	3.7	73	48	0.2	2.71	15	1.2
20210619_2241	42.520	1.465	15.2	11	126	0.1	15.34	3768	-0.7
20210620_1256	42.510	1.427	0.9	37	54	0.1	5.14	81	0.5
20210621_0640	42.502	1.421	12.0	27	57	0.1	5.28	125	0.1
20210622_2032	42.505	1.429	2.8	39	54	0.1	5.09	76	0.1
20210622_2035	42.501	1.422	1.3	28	95	0.1	5.19	84	-0.1
20210622_2218	42.513	1.429	3.9	42	97	0.1	4.86	73	0.2
20210623_0813	42.530	1.453	8.4	20	101	0.1	7.68	131	0.0
20210624_2108	42.507	1.429	3.2	42	80	0.1	4.58	82	0.3
20210703_1147	42.514	1.422	3.0	33	56	0.1	5.38	139	-0.1
20210703_1201	42.510	1.419	6.4	34	54	0.1	6.4	172	-0.1
20210703_1218	42.509	1.452	11.5	18	105	0.1	7.54	330	-0.2
20210703_1512	42.516	1.436	10.0	18	114	0.1	6.94	315	-0.1
20210705_0343	42.513	1.431	3.4	45	53	0.1	4.17	41	0.3
20210706_2020	42.522	1.439	6.9	44	53	0.1	4.78	50	0.4
20210707_1554	42.513	1.431	4.8	30	54	0.1	5.59	157	0.1
20210707_1813	42.516	1.439	5.2	70	55	0.1	2.65	14	1.4
20210707_2151	42.531	1.464	12.2	12	110	0.1	9.3	758	-0.8
20210712_1638	42.512	1.426	2.7	28	96	0.1	5.33	69	0.2
20210712_1705	42.484	1.460	7.7	16	155	0.1	6.76	324	-0.2
20210716_0045	42.517	1.415	2.1	12	108	0.0	7.55	268	-0.7

DATE	LAT (º)	LON (º)	DEPTH (km)	NLECT	GAP (º)	RMS (s)	SEMEE (km)	VOL (km3)	MAG ICGC
20210717_0118	42.506	1.423	7.0	19	102	0.1	7.01	206	-0.6
20210718_1748	42.514	1.431	6.4	26	87	0.1	5.73	131	-0.1
20210723_0427	42.501	1.421	3.4	32	85	0.1	5.44	225	-0.2
20210727_0622	42.512	1.458	12.6	10	161	0.1	13.38	1784	-0.7
20210728_2055	42.532	1.446	6.5	38	52	0.1	6.15	110	-0.1
20210729_0215	42.520	1.427	1.9	18	100	0.1	6.97	205	-0.7
20210729_2150	42.514	1.427	2.1	43	53	0.1	5.21	76	0.1
20210730_0510	42.503	1.421	2.4	15	146	0.1	7.31	407	-0.5
20210805_1451	42.525	1.435	6.7	18	140	0.1	5.92	179	0.1
20210805_1458	42.516	1.437	4.4	38	53	0.1	5.13	76	0.7
20210807_1229	42.514	1.433	5.3	39	53	0.1	5.25	82	0.3
20210808_0408	42.528	1.438	7.4	57	49	0.2	3.98	47	0.6
20210811_1334	42.510	1.408	0.3	11	154	0.1	10.27	956	-0.5
20210813_0201	42.439	1.468	7.0	18	71	0.1	8.32	310	-0.3
20210814_0748	42.545	1.432	6.3	11	122	0.1	7.62	532	-0.6
20210914_0334	42.509	1.415	1.9	7	156	0.1	18.05	4789	-1.0
20210915_0638	42.516	1.406	5.7	4	289	0.0	24.18	20420	-1.0
20211003_0218	42.513	1.418	3.4	11	111	0.1	13.54	1292	-0.8
20211006_1835	42.519	1.427	6.5	14	116	0.1	4.92	43	-0.5
20211008_0324	42.510	1.411	-0.9	16	110	0.1	8.14	137	-0.4
20211008_1207	42.512	1.422	4.7	10	124	0.1	16.81	3143	-0.5
20211008_1209	42.515	1.429	5.6	16	113	0.1	9.01	587	-0.2
20211009_0311	42.432	1.418	-1.3	6	154	0.4	23.21	28304	-1.1
20211009_0552	42.509	1.412	-1.1	9	115	0.1	18.46	1506	-0.5
20211009_0717	42.520	1.419	2.5	14	99	0.1	5.75	50	0.0
20211009_0855	42.525	1.428	7.6	12	99	0.1	6.16	149	0.0
20211009_0855	42.514	1.423	1.8	35	113	0.2	4.87	109	0.6
20211009_2051	42.521	1.428	5.8	14	100	0.1	4.9	42	-0.2
20211009_2205	42.521	1.428	6.7	18	69	0.1	6.25	196	0.1
20211010_1441	42.509	1.460	-0.5	18	80	0.1	8.98	317	0.3
20211010_2048	42.519	1.437	0.6	16	78	0.1	14.2	1257	-0.5
20211010_2328	42.521	1.427	4.6	45	53	0.2	4.06	30	0.0
20211011_0153	42.517	1.451	8.7	26	74	0.1	2.53	12	-0.4
20211011_0203	42.518	1.474	11.1	22	70	0.1	2.09	10	-0.1
20211011_0823	42.522	1.431	4.0	137	49	0.3	2.12	9	3.6
20211011_0847	42.515	1.439	3.7	16	114	0.0	4.07	25	0.2
20211011_0849	42.511	1.413	2.9	7	136	0.0	19.9	6668	-0.4
20211011_0852	42.515	1.415	3.0	13	113	0.0	11.78	565	-0.5
20211011_0852	42.495	1.410	3.3	9	121	0.1	20.92	8842	-0.2
20211011_0856	42.515	1.416	2.5	31	64	0.2	6.6	200	0.4
20211011_1009	42.509	1.412	0.6	13	113	0.0	12.5	961	-0.3
20211011_1015	42.523	1.425	7.2	23	67	0.1	5.68	68	0.3
20211011_1124	42.501	1.422	3.3	8	164	0.0	19.45	7545	-0.7
20211011_2329	42.497	1.415	2.0	10	107	0.1	14.82	2759	-1.2
20211011_2329	42.509	1.415	3.0	18	90	0.1	6.83	122	-0.3
20211011_2357	42.508	1.414	0.0	13	109	0.0	7.23	134	-0.6
20211012_0022	42.517	1.435	4.1	68	48	0.3	3.19	21	0.9
20211012_1434	42.512	1.419	0.5	9	223	0.0	17.52	7119	-0.4
20211012_1435	42.513	1.412	-0.1	11	117	0.1	15.64	4122	-0.3
20211012_1830	42.504	1.418	1.9	10	111	0.1	15.28	3581	-0.9
20211012_1909	42.515	1.424	3.1	8	120	0.0	17.88	4782	-0.7
20211013_2105	42.510	1.416	-0.8	11	116	0.0	13.64	2022	-0.8
20211014_0933	42.512	1.418	2.7	31	80	0.2	5.82	108	0.3
20211015_1425	42.508	1.445	6.4	26	61	0.1	5.66	122	0.1
20211015_1455	42.496	1.410	0.5	19	102	0.1	6.11	159	-0.5
20211016_0046	42.515	1.441	5.5	37	66	0.2	5.17	53	0.1
20211019_0019	42.504	1.423	3.4	10	146	0.0	8.76	689	-0.9
20211019_1757	42.503	1.410	1.3	9	160	0.0	13.92	1621	-0.4
20211022_0909	42.509	1.448	7.1	33	62	0.1	4.57	49	0.3
20211023_0350	42.507	1.434	4.6	39	54	0.1	4.84	68	0.2

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20211023_0352	42.523	1.443	9.5	21	84	0.1	6.63	195	-0.2
20211023_0353	42.518	1.441	6.0	44	53	0.1	4.7	77	0.3
20211023_0712	42.510	1.423	1.7	8	116	0.0	14.56	2268	-0.8
20211023_2142	42.496	1.406	1.7	14	102	0.1	7.81	316	-1.0
20211024_1640	42.497	1.408	1.0	8	163	0.0	14.7	2478	-0.8
20211024_1932	42.515	1.399	0.3	6	150	0.0	19.59	4611	-0.8
20211025_0820	42.507	1.435	9.4	12	161	0.1	10.21	804	-0.5
20211025_0942	42.502	1.426	4.1	24	86	0.1	5.5	120	-0.1
20211025_0946	42.507	1.425	6.3	10	145	0.0	8.4	438	-0.4
20211025_1218	42.499	1.410	1.3	11	163	0.1	8.18	531	-0.7
20211026_2105	42.518	1.429	6.6	22	67	0.1	6.2	139	-0.2
20211027_0605	42.512	1.428	5.7	65	48	0.1	2.71	11	1.3
20211027_1025	42.511	1.431	9.7	10	144	0.1	6.4	158	-0.5
20211027_1821	42.508	1.444	10.1	9	135	0.1	13.15	668	-0.5
20211027_1822	42.507	1.430	1.1	19	103	0.1	5.83	151	-0.3
20211028_1803	42.525	1.434	5.3	40	53	0.1	4.33	51	0.2
20211030_2357	42.501	1.430	11.7	14	147	0.1	8.09	268	-0.5
20211031_1746	42.522	1.433	2.3	79	49	0.1	2.7	12	1.4
20211101_2035	42.489	1.406	0.9	15	103	0.1	5.86	92	-0.7
20211102_2045	42.500	1.434	6.6	13	105	0.1	8.07	307	-0.6
20211103_0043	42.528	1.432	1.1	33	56	0.1	4.73	80	-0.1
20211104_1837	42.511	1.449	7.1	15	119	0.1	7.28	187	-0.4
20211106_2127	42.521	1.438	2.5	22	101	0.1	5.55	92	0.0
20211113_0427	42.521	1.445	6.6	9	111	0.1	11.44	1291	-0.6
20211113_0427	42.517	1.443	6.7	30	53	0.1	3.71	23	0.0
20211114_0937	42.507	1.429	3.4	14	118	0.1	8.73	395	-0.3
20211114_1105	42.555	1.384	3.0	28	128	0.1	4.83	61	-0.2
20211115_0248	42.517	1.439	4.5	19	102	0.1	4.78	74	-0.1
20211115_0426	42.505	1.435	7.3	9	107	0.0	7.53	412	-0.7
20211115_1814	42.501	1.452	9.8	19	107	0.1	7.68	309	-0.2
20211115_1935	42.521	1.440	8.6	27	53	0.1	3.72	22	0.1
20211115_2042	42.504	1.426	6.4	15	103	0.1	5.07	85	-0.7
20211116_0305	42.521	1.433	3.9	9	125	0.1	12.84	610	-0.8
20211116_0420	42.513	1.433	2.1	18	102	0.1	4.5	44	-0.2
20211116_2030	42.505	1.426	3.0	22	58	0.1	6.38	167	-0.1
20211118_1939	42.501	1.424	3.9	15	103	0.1	6.35	78	-0.6
20211119_1937	42.515	1.422	3.1	8	141	0.0	17.27	2608	-0.8
20211120_1919	42.520	1.431	0.4	32	68	0.1	4.08	37	-0.1
20211123_1905	42.517	1.436	1.4	43	53	0.1	4.65	105	0.5
20211124_0743	42.506	1.438	7.2	18	104	0.1	5.96	147	-0.4
20211125_1715	42.517	1.437	3.1	29	57	0.1	5.07	110	0.1
20211125_1909	42.516	1.443	9.8	21	103	0.1	5.15	99	0.0
20211127_0819	42.521	1.430	1.6	29	56	0.1	4.41	52	0.2
20211127_1626	42.491	1.420	2.0	11	126	0.1	7.88	160	-0.5
20211127_1627	42.490	1.417	3.4	7	241	0.1	11.54	1243	-0.7
20211127_1640	42.520	1.431	3.2	35	53	0.1	3.54	27	0.4
20211127_1640	42.521	1.446	5.4	52	51	0.1	2.26	8	1.0
20211127_1702	42.527	1.463	8.8	24	78	0.1	3.81	30	0.1
20211201_1025	42.516	1.442	6.8	60	47	0.1	2.94	11	0.9
20211202_0001	42.507	1.418	4.1	17	101	0.1	6.4	125	-0.5
20211202_0813	42.533	1.430	7.4	18	100	0.1	3.66	18	-0.6
20211204_2242	42.519	1.386	6.3	16	103	0.1	3.95	22	-0.4
20211207_2237	42.499	1.420	2.9	9	121	0.0	10.89	154	-0.9
20211207_2241	42.520	1.427	1.1	8	146	0.0	11.11	219	-0.5
20211212_2033	42.478	1.401	-1.2	6	175	0.0	14.74	1356	-1.2
20211212_2215	42.509	1.426	2.7	17	102	0.1	5.9	67	-1.1
20211213_0130	42.502	1.429	2.8	29	54	0.1	5.07	64	-0.4
20211213_1704	42.519	1.445	3.4	61	93	0.1	2.05	6	0.9
20211214_0239	42.497	1.419	-1.8	8	124	0.0	11.62	257	-1.2
20211214_0453	42.496	1.423	9.5	14	104	0.1	7.42	124	-0.6

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20211220_0030	42.520	1.452	6.3	19	103	0.1	3.5	15	-0.4
20211221_0937	42.516	1.441	2.4	27	79	0.1	3.97	39	0.2
20211221_1247	42.508	1.453	14.1	8	164	0.1	8.91	561	-0.5
20211223_1542	42.535	1.468	8.8	10	141	0.0	4.45	81	-0.4
20211223_2023	42.523	1.431	6.9	14	140	0.1	4.16	42	-0.7
20211226_0008	42.522	1.419	3.2	7	147	0.0	15.08	1080	-0.8
20211226_0649	42.523	1.427	4.1	28	79	0.2	3.44	36	0.1
20211228_0238	42.517	1.435	3.7	13	142	0.0	4.41	33	-0.5
20211229_0813	42.492	1.418	1.9	4	240	0.0	21.78	4366	-0.8
20211230_0009	42.515	1.438	1.4	48	48	0.1	4.34	28	0.4
20220101_1137	42.490	1.421	7.4	16	150	0.1	5.4	94	-0.5
20220103_1738	42.512	1.441	9.2	23	114	0.1	4.93	82	-0.1
20220105_1532	42.511	1.428	3.1	30	80	0.1	3.52	43	0.3
20220106_0141	42.441	1.517	4.8	28	57	0.1	5.18	63	0.0
20220106_0236	42.514	1.417	2.2	12	125	0.0	4.08	39	-0.6
20220106_2103	42.537	1.455	9.6	26	94	0.1	3.11	22	0.0
20220107_0521	42.556	1.483	15.5	16	95	0.1	5.91	59	-0.9
20220107_2024	42.523	1.444	5.5	32	53	0.1	2.44	10	0.1
20220108_0323	42.524	1.435	9.5	25	71	0.1	3.75	33	0.0
20220108_1621	42.521	1.442	10.4	15	139	0.1	5.55	119	-0.3
20220108_2004	42.511	1.415	3.2	8	155	0.0	10.45	422	-0.7
20220109_1931	42.515	1.439	9.5	14	143	0.1	4.1	36	-0.3
20220109_1932	42.481	1.422	9.3	8	179	0.1	8.13	432	-0.7
20220111_0344	42.496	1.403	2.1	17	101	0.1	2.74	11	-0.3
20220111_1246	42.521	1.434	3.5	122	48	0.3	2.72	12	2.5
20220111_1249	42.521	1.430	2.7	64	49	0.2	3.61	40	1.4
20220114_0428	42.494	1.418	2.1	10	122	0.0	6.82	67	-0.7
20220114_0606	42.512	1.430	7.8	8	139	0.0	12.49	216	-0.9
20220114_1033	42.514	1.433	6.6	18	112	0.1	3.79	47	0.0
20220114_1333	42.472	1.403	10.5	8	224	0.0	10.57	484	-0.7
20220115_0734	42.508	1.437	6.5	36	54	0.1	2.16	6	0.2
20220115_0735	42.494	1.418	4.9	10	122	0.0	7.41	62	-0.8
20220115_1122	42.529	1.442	5.2	71	49	0.1	2.23	8	1.1
20220115_1233	42.510	1.424	0.2	21	62	0.1	3.22	13	-0.2
20220115_1402	42.525	1.448	16.0	14	130	0.1	6.75	184	-0.4
20220116_0200	42.523	1.435	3.5	64	49	0.1	2.48	11	0.5
20220116_0201	42.517	1.429	6.2	14	122	0.1	4.77	37	-0.5
20220116_0208	42.510	1.420	3.5	14	102	0.1	5.89	59	-0.6
20220116_0311	42.520	1.432	3.1	57	48	0.1	2.59	8	0.4
20220116_0824	42.540	1.431	4.7	4	194	0.0	20.94	3635	-1.3
20220116_0824	42.613	1.453	-0.2	4	237	0.0	20.89	3075	-1.2
20220116_1405	42.513	1.441	5.8	68	47	0.1	1.99	5	0.7
20220116_1652	42.520	1.438	4.9	40	53	0.1	2.25	6	0.1
20220116_2039	42.520	1.445	6.2	33	58	0.1	2.59	9	0.0
20220117_0102	42.501	1.411	0.0	10	118	0.1	9.15	201	-0.9
20220117_0645	42.507	1.427	2.5	56	49	0.1	2.36	8	0.6
20220117_1010	42.519	1.454	8.7	12	143	0.1	4.27	39	-0.2
20220118_2333	42.510	1.425	5.6	6	224	0.0	13.13	2089	-1.2
20220119_2244	42.522	1.446	8.3	10	141	0.0	4.27	63	-0.7
20220120_0047	42.511	1.436	6.9	77	47	0.1	2.18	6	0.9
20220120_0351	42.539	1.442	6.9	22	130	0.1	4.18	35	-0.3
20220120_0819	42.513	1.436	6.9	14	125	0.0	3.41	29	-0.4
20220120_1223	42.511	1.439	7.4	62	47	0.1	1.95	7	0.9
20220120_1910	42.509	1.412	-0.4	10	115	0.0	16.54	1384	-0.4
20220120_1916	42.509	1.420	2.0	15	102	0.1	6.93	308	-0.1
20220120_2358	42.549	1.445	9.7	14	142	0.2	9.33	526	0.0
20220121_0042	42.523	1.435	5.1	19	73	0.1	3.09	17	-0.2
20220121_0236	42.507	1.414	1.0	10	114	0.3	14.55	1618	-0.8
20220122_0623	42.519	1.422	3.9	11	123	0.0	12.57	635	-0.4
20220122_1150	42.509	1.420	2.0	15	90	0.1	6.05	104	0.1

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20220123_0216	42.517	1.424	3.4	9	121	0.0	16.98	774	-0.5
20220123_0709	42.507	1.414	-0.8	6	157	0.0	24.64	5433	-0.4
20220124_0304	42.498	1.433	4.0	8	125	0.1	18.17	3876	-1.0
20220124_2350	42.518	1.429	6.0	15	104	0.2	6.98	174	-0.5
20220125_0544	42.506	1.417	-1.8	8	159	0.1	13.9	1259	-0.7
20220126_0200	42.516	1.433	3.9	51	81	0.3	3.94	37	0.9
20220128_1638	42.510	1.421	5.9	14	116	0.1	9.52	536	-0.2
20220129_1803	42.507	1.420	2.3	23	108	0.1	5.18	63	-0.2
20220129_2150	42.507	1.428	3.9	21	91	0.1	5.71	104	0.0
20220130_0131	42.506	1.447	6.4	40	80	0.3	3.73	57	0.2
20220130_0418	42.515	1.427	3.4	22	83	0.2	5.74	81	-0.3
20220130_0422	42.514	1.428	3.7	22	84	0.2	5.01	74	-0.3
20220130_0725	42.506	1.418	4.7	6	159	0.1	20.19	9943	-0.9
20220201_0202	42.522	1.439	5.2	147	48	0.2	2.53	9	3.8
20220201_0206	42.522	1.436	4.3	6	234	0.1	20.56	21078	-0.4
20220201_0206	42.523	1.441	5.6	27	158	0.1	6.37	56	1.0
20220201_0207	42.516	1.436	5.7	11	154	0.1	18.12	4663	0.1
20220201_0207	42.533	1.444	6.2	20	163	0.1	6.95	92	0.7
20220201_0210	42.527	1.438	3.9	106	49	0.3	2.39	7	1.7
20220201_0223	42.535	1.430	0.8	46	50	0.2	3.57	21	0.6
20220201_0230	42.526	1.439	3.3	52	49	0.3	3.48	18	0.4
20220201_0245	42.513	1.439	0.7	15	153	0.1	8.23	165	0.1
20220201_0301	42.532	1.427	4.0	9	166	0.1	14.08	1267	-0.3
20220201_0315	42.524	1.446	3.4	52	48	0.3	3.47	18	0.5
20220201_0317	42.521	1.451	-1.3	8	208	0.1	15.66	2011	-0.4
20220201_0320	42.520	1.444	3.8	45	48	0.2	2.52	9	0.4
20220201_0558	42.529	1.443	2.8	49	49	0.3	3.86	35	0.8
20220201_0619	42.523	1.439	3.5	65	48	0.3	2.89	13	0.8
20220201_0628	42.510	1.446	0.5	22	153	0.2	8.98	294	0.0
20220201_0628	42.520	1.419	4.7	8	153	0.1	22.75	6593	0.4
20220201_0644	42.518	1.437	3.8	7	155	0.0	23.78	4698	-0.3
20220201_0814	42.519	1.426	8.1	17	68	0.1	5.64	139	0.2
20220201_0831	42.528	1.461	-1.6	8	138	0.2	23.86	10651	0.0
20220201_1326	42.514	1.428	3.9	47	49	0.2	4.07	63	0.9
20220201_1638	42.517	1.453	10.2	29	58	0.1	5.54	37	0.5
20220201_1745	42.509	1.438	7.4	33	54	0.1	2.59	11	0.3
20220201_2121	42.528	1.433	3.8	37	52	0.1	2.79	10	0.2
20220202_0412	42.514	1.426	2.7	36	53	0.1	2.17	6	0.0
20220202_0526	42.512	1.408	8.9	14	111	0.1	4.23	28	-0.7
20220202_0814	42.513	1.446	8.2	22	99	0.1	3.31	16	0.1
20220202_0826	42.515	1.415	4.1	15	100	0.1	5.16	50	-0.5
20220202_1133	42.520	1.435	10.0	39	50	0.1	1.89	6	0.3
20220202_1205	42.538	1.432	9.7	18	129	0.1	3.89	28	-0.4
20220202_1437	42.512	1.432	5.3	20	85	0.1	2.8	11	-0.3
20220202_1450	42.530	1.451	7.9	10	142	0.1	4.7	65	-0.4
20220202_1914	42.532	1.468	13.7	12	139	0.1	5.79	97	-0.6
20220202_2029	42.518	1.434	6.5	48	48	0.1	2.22	6	0.4
20220202_2030	42.523	1.426	5.5	12	126	0.0	4.34	33	-0.7
20220202_2333	42.474	1.392	3.7	14	104	0.1	4.49	23	-0.8
20220202_2334	42.536	1.418	3.9	8	136	0.0	7.75	260	-1.0
20220202_2335	42.517	1.436	6.9	63	48	0.1	1.86	5	0.7
20220203_0055	42.479	1.422	4.6	16	108	0.0	3.22	13	-0.3
20220203_0145	42.531	1.427	5.7	20	74	0.1	3.16	13	-0.4
20220203_0337	42.517	1.418	-0.1	6	150	0.0	14.32	1441	-1.0
20220203_0621	42.513	1.416	-2.0	10	128	0.1	6.1	81	-0.7
20220203_1330	42.523	1.426	2.7	8	146	0.1	8.51	505	-0.7
20220203_1858	42.516	1.430	6.9	12	104	0.0	4.56	55	-0.3
20220203_1947	42.516	1.428	5.3	22	82	0.1	2.59	10	-0.1
20220204_0255	42.479	1.407	-0.7	6	155	0.0	14.97	1391	-1.2
20220204_0409	42.515	1.421	10.0	24	56	0.1	4.72	22	-0.5

DATE	LAT (º)	LON (º)	DEPTH (km)	NLECT	GAP (º)	RMS (s)	SEMEE (km)	VOL (km3)	MAG ICGC
20220205_0837	42.518	1.417	5.5	18	82	0.1	7.97	263	-0.4
20220205_1632	42.499	1.377	2.0	11	107	0.2	16.35	2720	-0.7
20220205_1833	42.512	1.426	3.3	7	192	0.1	18.09	5715	-0.8
20220206_1212	42.526	1.428	6.7	14	106	0.1	5.85	144	0.0
20220206_2224	42.515	1.413	1.0	11	119	0.1	8.16	286	-0.3
20220207_0923	42.519	1.444	5.1	53	48	0.1	2.63	8	0.8
20220207_0928	42.514	1.485	11.3	32	88	0.1	6.08	136	0.1
20220207_1104	42.512	1.442	1.6	45	64	0.2	4.99	61	0.6
20220207_1203	42.485	1.431	9.5	18	108	0.1	4.72	51	-0.3
20220208_0046	42.465	1.389	9.7	12	105	0.1	8.05	95	-0.6
20220208_0458	42.520	1.438	7.9	40	53	0.1	3.81	39	0.1
20220208_2206	42.528	1.433	5.8	46	52	0.2	2.85	17	0.3
20220210_0735	42.523	1.438	9.2	36	68	0.1	2.56	11	0.1
20220210_1951	42.517	1.418	3.1	11	121	0.1	11.57	715	-0.8
20220211_0431	42.512	1.432	6.4	10	126	0.1	4.44	134	-0.3
20220211_0518	42.488	1.407	1.0	9	156	0.1	9.86	1149	-0.5
20220211_2025	42.524	1.437	5.1	37	53	0.2	3.74	23	0.7
20220211_2044	42.521	1.434	4.9	22	57	0.2	4.23	48	0.4
20220211_2205	42.519	1.435	4.2	41	53	0.2	3.19	21	0.7
20220211_2206	42.509	1.412	-1.8	5	156	0.0	24.77	8459	-0.6
20220212_1011	42.502	1.442	-1.0	10	129	0.2	8.48	737	-0.8
20220212_1728	42.528	1.424	6.3	8	142	0.2	19.95	6163	-0.5
20220212_1844	42.511	1.409	0.9	12	116	0.1	7.04	134	-0.9
20220212_2148	42.513	1.423	3.9	23	85	0.2	5.19	106	-0.4
20220213_0535	42.520	1.436	5.3	37	57	0.2	2.9	20	-0.1
20220213_1852	42.521	1.430	4.8	16	117	0.2	6.24	167	-0.5
20220214_0344	42.525	1.430	2.9	35	53	0.1	2.64	9	0.2
20220214_0459	42.522	1.437	7.0	12	127	0.1	8.09	597	-0.7
20220214_0536	42.475	1.403	2.0	8	178	0.0	11.1	528	-0.6
20220214_1224	42.521	1.436	6.0	75	48	0.1	2.09	6	1.4
20220214_2028	42.530	1.440	6.5	39	56	0.1	2.36	9	0.2
20220214_2050	42.513	1.431	5.2	16	84	0.1	3.56	27	-0.5
20220214_2145	42.531	1.439	3.5	38	56	0.1	2.42	9	0.1
20220215_0611	42.497	1.415	2.0	10	147	0.1	5.57	98	-0.5
20220215_1846	42.511	1.425	1.8	59	54	0.1	2.56	10	0.7
20220216_0221	42.516	1.438	5.8	42	50	0.2	3.71	38	0.3
20220216_0325	42.520	1.418	4.1	14	116	0.1	9.4	378	-0.5
20220216_0516	42.518	1.434	5.1	23	79	0.1	4.23	32	-0.3
20220216_0643	42.517	1.439	5.3	58	48	0.1	2.28	6	1.0
20220216_0940	42.505	1.442	2.0	14	147	0.1	9.64	388	-0.1
20220216_2039	42.516	1.429	4.0	46	49	0.1	2.15	6	0.4
20220217_2230	42.508	1.421	1.7	31	96	0.1	4.4	86	0.2
20220218_0710	42.585	1.448	2.6	4	214	0.0	19.11	4722	-1.4
20220218_1337	42.517	1.465	3.1	14	128	0.1	9.96	474	-0.1
20220219_0033	42.518	1.414	3.4	7	143	0.1	14.14	1889	-1.1
20220219_1244	42.509	1.418	1.7	12	133	0.2	10.8	710	-0.5
20220219_1659	42.506	1.417	3.1	9	116	0.1	16.36	1285	-0.6
20220221_0450	42.514	1.439	-2.0	41	50	0.2	4.31	31	0.8
20220221_1044	42.509	1.434	-0.2	12	123	0.1	9.18	654	-0.4
20220221_1202	42.511	1.448	-0.5	12	183	0.1	7.34	162	0.2
20220222_2345	42.517	1.426	3.3	34	49	0.2	3.08	13	0.3
20220223_0436	42.521	1.440	4.1	10	162	0.1	9.71	866	-0.6
20220223_1831	42.514	1.439	6.7	22	97	0.1	3.19	33	0.0
20220224_1639	42.511	1.447	5.3	23	97	0.2	5.96	120	0.1
20220224_1835	42.522	1.430	4.1	18	77	0.2	6.08	108	-0.5
20220225_0212	42.516	1.417	1.1	18	97	0.2	5.4	157	-0.3
20220225_0234	42.519	1.432	3.8	29	98	0.2	3.56	31	-0.1
20220225_2237	42.513	1.431	3.9	9	126	0.1	9.25	478	-0.6
20220227_0838	42.531	1.435	7.5	13	78	0.1	11.93	1800	-0.4
20220301_1915	42.512	1.437	9.2	11	95	0.0	4.1	35	-1.0

DATE	LAT (º)	LON (º)	DEPTH (km)	NLECT	GAP (º)	RMS (s)	SEMEE (km)	VOL (km3)	MAG ICGC
20220302_0030	42.447	1.353	4.2	6	213	0.0	16.1	893	-0.9
20220302_0602	42.523	1.439	5.0	22	99	0.1	3.24	18	-0.1
20220302_0737	42.515	1.432	3.0	8	151	0.0	7.89	386	-0.7
20220303_1103	42.515	1.399	3.4	6	267	0.1	12.6	1436	-0.8
20220304_1903	42.508	1.429	0.3	8	145	0.1	12.6	1153	-0.4
20220306_0212	42.512	1.441	-1.9	45	53	0.3	4.77	45	0.2
20220306_1504	42.524	1.451	9.7	8	160	0.1	5.49	255	-0.7
20220309_1253	42.531	1.476	11.8	37	47	0.1	3.99	41	0.4
20220311_2108	42.500	1.419	-0.9	8	127	0.0	11.01	174	-0.7
20220312_0844	42.501	1.413	2.7	17	98	0.1	4.12	46	-0.4
20220312_2058	42.505	1.412	-0.3	13	130	0.0	3.49	18	-0.7
20220313_1216	42.515	1.416	1.4	12	119	0.0	5.86	43	-0.3
20220313_2156	42.517	1.428	5.8	21	56	0.1	3.05	12	-0.9
20220315_0011	42.504	1.437	7.0	19	94	0.1	2.68	9	-0.4
20220316_0559	42.514	1.433	7.4	18	104	0.1	2.87	16	-0.3
20220316_1826	42.523	1.439	4.2	64	48	0.1	2.77	12	0.7
20220317_2358	42.520	1.431	3.1	50	48	0.1	1.98	4	0.4
20220318_0610	42.526	1.439	6.3	8	170	0.1	11.39	766	-0.8
20220318_0704	42.506	1.419	4.2	9	145	0.1	12.11	1620	-0.5
20220318_0803	42.521	1.441	6.0	68	48	0.1	2.11	6	0.8
20220318_0825	42.521	1.420	3.8	44	49	0.1	4.72	64	0.6
20220318_1305	42.516	1.406	7.1	7	226	0.0	19.23	9213	-0.6
20220318_1339	42.516	1.428	4.2	27	54	0.1	5.69	119	0.0
20220318_1340	42.520	1.428	5.6	17	100	0.1	10.79	757	-0.1
20220318_1420	42.501	1.418	2.6	7	163	0.1	20.49	10504	-0.5
20220318_1426	42.512	1.420	2.8	35	48	0.2	4.91	59	0.5
20220318_1437	42.501	1.414	1.9	9	142	0.0	17.11	4297	-0.4
20220318_1610	42.507	1.411	3.3	9	126	0.0	15.64	2888	-0.8
20220318_1610	42.484	1.402	-1.6	8	151	0.1	17.85	9748	-0.7
20220319_0227	42.517	1.430	3.6	105	48	0.3	3.05	17	2.0
20220319_1040	42.515	1.419	3.3	13	119	0.0	13.93	2221	-0.2
20220319_1624	42.495	1.404	0.6	8	120	0.0	12.88	1974	-0.5
20220320_0104	42.456	1.401	1.9	11	109	0.1	14.07	2720	-0.4
20220320_1755	42.506	1.411	0.0	11	113	0.1	12.08	697	-0.4
20220322_2150	42.506	1.425	4.5	17	92	0.1	3.64	40	0.2
20220323_0951	42.529	1.429	7.6	12	155	0.1	8.19	204	-0.6
20220323_1849	42.492	1.415	6.6	6	240	0.0	13.02	1712	-1.1
20220323_2002	42.510	1.442	6.3	40	54	0.1	2.38	10	0.2
20220323_2053	42.510	1.416	1.3	6	225	0.0	12.19	1570	-0.8
20220324_1715	42.498	1.436	10.8	10	126	0.1	8.71	417	-0.7
20220324_2233	42.533	1.444	7.2	20	62	0.1	2.71	13	-0.2
20220325_1536	42.524	1.433	5.1	8	146	0.0	7.67	314	-0.5
20220325_1910	42.516	1.421	-0.5	16	120	0.0	2.79	12	-0.5
20220325_2031	42.523	1.421	0.2	32	53	0.1	2.41	8	0.2
20220326_0026	42.516	1.437	8.8	10	143	0.0	9.67	321	-0.7
20220326_0627	42.510	1.421	3.4	8	131	0.0	18.64	3821	-0.6
20220327_0456	42.518	1.440	7.8	43	48	0.2	4.9	51	0.3
20220327_0729	42.518	1.430	6.0	47	48	0.1	4.76	51	0.5
20220327_0745	42.509	1.407	-1.6	6	154	0.0	18.37	12226	-0.9
20220328_0700	42.499	1.421	1.0	10	129	0.1	7.43	400	-0.7
20220328_1853	42.512	1.426	3.1	29	57	0.1	3.28	19	-0.1
20220328_1855	42.520	1.432	3.1	51	53	0.1	2.93	14	0.5
20220329_0435	42.503	1.414	3.5	11	145	0.0	4.83	70	-0.9
20220329_1911	42.485	1.401	1.6	14	124	0.0	7.06	91	-0.5
20220330_0114	42.509	1.425	4.6	14	115	0.0	5.76	90	-0.6
20220402_1005	42.477	1.416	8.5	23	90	0.1	6.22	80	0.0
20220402_1559	42.517	1.454	13.7	23	98	0.1	4.03	35	0.0
20220404_2327	42.570	1.429	9.8	10	180	0.1	10.85	981	-0.8
20220406_0036	42.511	1.433	6.2	41	74	0.1	3.74	28	0.1
20220406_0306	42.530	1.422	3.4	8	155	0.0	8.31	308	-1.2

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20220406_0502	42.521	1.420	4.1	49	53	0.2	4.64	53	0.7
20220408_0542	42.507	1.411	-0.2	10	135	0.0	15.63	2968	-0.3
20220408_2205	42.521	1.420	4.6	23	79	0.1	5.74	148	-0.2
20220408_2205	42.497	1.422	2.5	16	102	0.1	8.19	374	-0.2
20220411_2007	42.526	1.419	4.8	15	128	0.2	7.28	111	-0.3
20220411_2217	42.525	1.423	6.5	14	80	0.1	6.24	122	-0.4
20220412_2348	42.516	1.422	3.5	15	104	0.1	5.51	112	-0.6
20220413_1222	42.527	1.436	7.8	65	49	0.2	2.5	8	1.0
20220413_2037	42.508	1.420	0.4	11	121	0.1	7.11	195	-0.5
20220413_2046	42.454	1.400	-1.8	8	187	0.1	12.23	1339	-0.9
20220413_2208	42.519	1.444	5.6	60	48	0.1	2.05	7	0.6
20220413_2308	42.507	1.418	-1.8	6	158	0.0	16.52	2620	-1.1
20220414_0254	42.513	1.410	-0.8	6	152	0.0	19.92	4956	-1.4
20220414_0328	42.512	1.428	3.4	17	103	0.2	5.32	113	-0.4
20220414_0328	42.510	1.421	1.8	16	122	0.2	4.22	70	-0.1
20220414_0423	42.515	1.425	3.1	105	48	0.3	2.73	13	2.1
20220414_0438	42.518	1.428	4.9	17	104	0.1	4.94	75	-0.2
20220414_0703	42.501	1.418	2.6	11	110	0.1	8.95	343	-0.4
20220414_0721	42.540	1.431	-0.9	4	194	0.0	20.1	3579	-1.0
20220414_1211	42.513	1.410	-1.6	6	153	0.0	14.04	1461	-0.8
20220414_1244	42.510	1.414	-1.9	34	54	0.3	3.99	39	0.5
20220414_2120	42.527	1.440	8.8	15	107	0.2	6.51	121	-0.6
20220415_0109	42.531	1.438	10.4	13	134	0.1	7.02	239	-0.9
20220415_1622	42.510	1.420	0.9	16	102	0.0	4.19	39	-0.3
20220416_2127	42.514	1.426	3.5	20	104	0.2	5.52	124	-0.1
20220416_2333	42.527	1.366	-0.2	5	215	0.1	23.8	4961	-1.5
20220418_1150	42.513	1.413	0.9	22	86	0.1	3.68	30	-0.2
20220419_1330	42.521	1.425	4.9	41	49	0.1	4.08	52	0.6
20220421_0413	42.470	1.432	6.1	6	190	0.1	18.14	7283	-0.4
20220421_1708	42.495	1.407	-1.6	8	118	0.0	20.07	8335	-0.6
20220423_1950	42.524	1.444	6.0	57	48	0.1	2.47	12	0.8
20220424_2215	42.510	1.427	3.2	39	54	0.1	2.87	10	0.0
20220426_0421	42.509	1.411	0.0	14	101	0.1	7.64	222	-0.6
20220426_1212	42.518	1.431	7.8	20	101	0.1	8.3	302	0.1
20220426_1400	42.520	1.422	4.2	11	140	0.1	15.81	1151	-0.2
20220426_2052	42.510	1.417	0.9	30	56	0.1	4.13	42	0.1
20220427_1038	42.517	1.426	4.0	19	81	0.1	4.3	71	-0.2
20220427_2032	42.508	1.419	2.0	27	57	0.1	5.33	83	0.1
20220427_2118	42.514	1.430	3.9	29	55	0.2	4.28	44	0.0
20220427_2224	42.536	1.455	6.4	22	58	0.1	2.54	9	-0.2
20220427_2319	42.516	1.423	3.0	35	53	0.1	2.72	14	0.1
20220429_0536	42.511	1.416	1.7	35	96	0.1	4.63	58	0.4
20220430_1112	42.502	1.434	3.9	37	59	0.2	4.82	94	0.5
20220501_0819	42.514	1.424	5.3	27	84	0.1	3.29	25	-0.2
20220501_2325	42.512	1.441	6.6	39	53	0.1	3.52	14	0.1
20220504_0127	42.503	1.411	3.0	14	118	0.0	3.01	17	-0.9
20220504_2257	42.517	1.431	4.5	18	104	0.0	2.49	11	-0.5
20220504_2321	42.529	1.449	7.5	27	57	0.1	2.47	11	-0.4
20220505_0250	42.527	1.441	4.5	22	68	0.1	2.73	14	-0.5
20220507_0116	42.520	1.438	4.6	29	69	0.1	2.73	12	-0.1
20220507_2127	42.515	1.433	4.2	60	48	0.1	2.91	9	0.4
20220508_0028	42.513	1.433	2.2	55	48	0.1	3	12	0.5
20220508_1940	42.512	1.439	3.1	59	47	0.1	3.32	39	0.4
20220511_2337	42.518	1.440	5.4	73	48	0.1	2.14	6	0.7
20220513_2025	42.512	1.429	4.5	12	127	0.0	3.29	22	-0.5
20220514_1624	42.521	1.436	3.6	50	50	0.1	1.91	5	0.4
20220514_1624	42.528	1.447	1.1	14	124	0.1	4.92	73	0.7
20220516_2121	42.519	1.424	3.2	22	97	0.1	5	63	-0.2
20220519_1046	42.508	1.449	10.2	18	61	0.1	6.88	165	-0.2
20220520_1831	42.524	1.446	5.7	54	51	0.1	2.78	11	0.6

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20220521_0802	42.501	1.416	2.4	25	60	0.1	2.53	7	0.0
20220522_1413	42.512	1.422	2.3	39	96	0.2	4.88	101	0.4
20220523_2241	42.496	1.410	3.4	8	146	0.0	8.45	350	-1.1
20220528_0051	42.510	1.464	9.9	24	76	0.1	4.27	95	-0.3
20220528_0051	42.514	1.442	5.3	27	58	0.1	4.58	58	-0.1
20220528_0422	42.557	1.454	10.9	10	145	0.1	5.07	75	-0.5
20220529_0501	42.516	1.431	2.6	62	48	0.1	2.67	10	0.6
20220601_0521	42.521	1.439	6.5	42	50	0.1	2.41	8	0.3
20220601_0524	42.534	1.440	9.5	16	109	0.1	6.33	163	-0.6
20220602_0421	42.513	1.435	6.3	74	47	0.1	2.22	8	1.2
20220602_0541	42.516	1.430	6.5	8	152	0.0	7.98	283	-0.5
20220602_2036	42.518	1.426	3.1	44	53	0.1	3.54	26	0.2
20220603_0014	42.523	1.420	4.9	12	147	0.1	7.49	386	-0.7
20220604_2138	42.525	1.431	4.8	45	53	0.1	3.27	25	0.4
20220608_1621	42.518	1.439	6.0	47	57	0.1	3.18	28	0.4
20220609_0233	42.522	1.440	6.5	32	57	0.1	3.79	19	-0.3
20220609_2229	42.517	1.433	3.8	12	152	0.1	7.55	407	-0.6
20220610_0948	42.523	1.446	11.0	18	131	0.1	7.63	415	-0.4
20220611_1212	42.522	1.431	6.0	27	56	0.1	3.88	34	0.2
20220611_1438	42.511	1.416	2.5	30	62	0.1	5.89	107	0.1
20220612_0458	42.516	1.424	3.9	23	80	0.1	6.17	134	-0.3
20220613_0327	42.513	1.423	3.8	15	103	0.1	10.57	935	-0.7
20220614_0418	42.518	1.412	4.2	9	148	0.1	17.7	3170	-0.8
20220615_0046	42.498	1.411	1.9	4	235	0.0	21.31	3532	-1.4
20220622_2244	42.505	1.409	4.1	10	144	0.1	5.71	142	-1.0
20220623_0043	42.523	1.434	3.2	33	56	0.1	3.1	18	-0.1
20220623_1946	42.516	1.426	2.5	19	82	0.0	4.57	61	-0.4
20220626_0042	42.525	1.431	2.4	21	100	0.1	4.29	33	-0.5
20220627_0341	42.513	1.431	5.3	47	49	0.1	2.83	19	0.3
20220628_0525	42.516	1.506	20.9	6	203	0.0	27.87	10310	-1.1
20220701_2312	42.520	1.437	4.9	30	57	0.1	3.54	18	-0.2
20220702_2213	42.521	1.428	6.3	12	127	0.0	11.03	783	-0.7
20220702_2239	42.497	1.410	2.0	8	142	0.0	12.34	1318	-1.4
20220702_2320	42.496	1.384	4.0	6	266	0.1	16.45	5018	-1.3
20220704_0130	42.545	1.329	14.5	4	266	0.0	20.42	4273	-1.2
20220705_1532	42.511	1.437	5.9	25	107	0.1	4.22	71	0.1
20220705_1706	42.522	1.431	3.1	42	53	0.1	3.91	51	0.4
20220707_1725	42.515	1.416	3.2	12	127	0.1	5.63	72	-0.6
20220712_0324	42.508	1.421	3.5	22	96	0.1	4.94	64	-0.1
20220714_2024	42.502	1.413	-0.3	15	140	0.1	7.36	323	-0.3
20220715_0701	42.545	1.406	0.7	24	101	0.1	4.27	60	-0.4
20220716_0813	42.510	1.419	3.7	10	116	0.0	7.67	270	-0.7
20220716_1344	42.523	1.438	3.4	44	117	0.1	3.64	46	0.3
20220716_1822	42.518	1.414	1.0	12	123	0.0	9.42	511	-0.5
20220719_2200	42.494	1.421	2.7	8	168	0.0	14.28	2120	-0.8
20220721_2317	42.557	1.439	15.2	10	143	0.1	9.77	1292	-0.7
20220722_2128	42.516	1.437	7.4	44	53	0.1	3.42	31	0.1
20220722_2129	42.514	1.429	0.5	16	113	0.1	5.06	75	-0.6
20220722_2135	42.488	1.423	2.5	16	106	0.1	4.5	41	-0.5
20220724_1826	42.533	1.444	8.1	34	69	0.1	2.92	30	-0.2
20220726_1811	42.500	1.410	2.4	31	84	0.1	3.58	38	-0.2
20220728_2301	42.512	1.426	2.0	56	48	0.1	2.36	7	0.3
20220729_2106	42.508	1.419	0.6	11	115	0.1	14.11	2249	-0.9
20220801_0804	42.512	1.425	2.0	33	54	0.1	4.09	48	0.1
20220802_1542	42.522	1.439	3.2	45	53	0.1	2.89	16	0.8
20220802_1621	42.519	1.423	4.4	14	141	0.1	9.79	475	-0.3
20220802_2020	42.503	1.422	1.4	23	95	0.2	5.76	152	-0.2
20220803_0408	42.513	1.426	4.1	9	143	0.0	12.66	693	-0.7
20220804_0050	42.476	1.398	-2.0	15	104	0.2	3.9	107	-0.7
20220804_0543	42.504	1.418	0.0	11	137	0.1	6.45	163	-0.5

DATE	LAT (º)	LON (º)	DEPTH (km)	NLECT	GAP (º)	RMS (s)	SEMEE (km)	VOL (km3)	MAG ICGC
20220805_0618	42.519	1.426	4.1	9	123	0.0	15.62	1312	-0.5
20220805_0715	42.511	1.421	1.0	17	96	0.1	3.11	15	0.0
20220805_2121	42.511	1.425	2.4	6	156	0.0	19.08	5126	-1.0
20220806_0416	42.509	1.416	-1.5	8	156	0.0	15.74	1438	-0.7
20220806_0454	42.505	1.407	0.5	15	106	0.2	6	144	-0.3
20220806_0528	42.515	1.407	0.2	16	113	0.1	7.67	142	-0.6
20220806_0919	42.508	1.409	0.0	14	114	0.1	5.3	56	-0.4
20220806_2252	42.514	1.422	3.2	18	96	0.1	4.37	56	-0.8
20220807_1832	42.521	1.424	3.8	138	49	0.3	2.43	11	2.5
20220809_0935	42.527	1.438	10.6	16	100	0.1	5.83	127	-0.6
20220810_0201	42.516	1.433	6.9	22	97	0.1	4.65	58	-0.5
20220811_0239	42.514	1.438	6.8	13	122	0.0	3.62	86	-0.5
20220812_1018	42.507	1.409	-1.9	14	157	0.2	7.49	332	-0.1
20220815_0554	42.518	1.440	9.5	11	116	0.1	7.57	162	-0.9
20220815_0819	42.511	1.411	-1.9	8	154	0.1	10.67	581	-0.5
20220815_1736	42.513	1.416	1.0	9	118	0.1	11.49	898	-0.7
20220816_0143	42.511	1.439	6.4	25	86	0.2	3.78	36	-0.4
20220820_0257	42.517	1.438	4.0	78	48	0.3	2.24	9	0.7
20220821_2350	42.516	1.423	6.5	16	100	0.1	6.66	184	-0.8
20220822_0553	42.510	1.412	-1.9	10	155	0.1	8.4	506	-0.6
20220823_2120	42.522	1.432	5.2	77	49	0.1	2.28	9	1.1
20220823_2221	42.495	1.413	4.2	10	149	0.0	12.45	1371	-1.2
20220826_2101	42.522	1.438	6.5	38	57	0.1	3.18	35	-0.3
20220828_0206	42.514	1.414	1.8	42	54	0.1	3.59	29	-0.1
20220828_2015	42.490	1.407	2.4	10	168	0.0	12.81	1640	-1.1
20220829_1202	42.500	1.429	1.8	10	132	0.0	8.91	452	-0.9
20220830_0215	42.521	1.429	3.2	50	49	0.1	3.25	26	0.2
20220831_2018	42.511	1.422	3.0	21	88	0.1	5.86	110	-0.1
20220831_2036	42.499	1.420	1.8	17	100	0.1	7.38	263	-0.3
20220902_2131	42.525	1.437	6.7	26	56	0.1	5.15	66	-0.5
20220905_0502	42.511	1.420	4.5	14	130	0.0	7.45	392	-0.4
20220906_0254	42.519	1.441	3.7	47	53	0.1	3.42	40	0.1
20220906_0419	42.527	1.464	15.1	12	141	0.1	8.42	565	-0.7
20220909_1329	42.513	1.411	2.8	12	118	0.1	7.78	195	-0.6
20220914_1122	42.523	1.433	2.0	18	114	0.2	6.43	145	-0.1
20220916_0748	42.519	1.426	4.1	46	53	0.3	3.52	23	0.7
20220918_2217	42.508	1.448	8.7	14	146	0.2	7.14	381	-0.5
20220919_0553	42.511	1.424	2.8	46	96	0.1	3.73	41	0.6
20220921_0135	42.511	1.434	7.9	19	103	0.2	6.32	149	-0.5
20220922_0454	42.510	1.411	3.2	11	143	0.1	6.9	179	-0.5
20220922_1940	42.508	1.413	0.5	16	100	0.2	5.88	91	-0.4
20220923_1736	42.510	1.410	1.8	18	95	0.1	7.24	245	-0.2
20220925_0839	42.508	1.429	4.1	36	54	0.2	4.95	104	0.2
20220930_2132	42.482	1.394	7.7	20	102	0.1	8.27	312	-0.5
20221001_1909	42.510	1.406	-1.8	12	111	0.1	6.51	179	-0.9
20221002_1100	42.515	1.414	1.3	10	119	0.0	9.69	150	-0.3
20221002_1959	42.494	1.408	2.0	15	102	0.2	6.04	133	-0.5
20221003_1221	42.518	1.429	4.0	68	48	0.3	2.75	16	1.3
20221005_0330	42.517	1.436	7.4	19	102	0.1	5.64	55	-0.4
20221005_1000	42.516	1.463	13.0	8	158	0.0	8.87	360	-0.5
20221008_1922	42.510	1.421	1.3	9	156	0.1	11.89	1500	-0.7
20221011_0522	42.500	1.418	5.1	14	143	0.0	5.58	71	-0.6
20221011_0522	42.460	1.404	0.6	16	140	0.1	5.44	102	-0.5
20221013_2228	42.503	1.439	7.8	24	96	0.1	5.38	96	-0.6
20221014_0002	42.537	1.450	10.2	10	142	0.0	8	228	-0.8
20221014_2148	42.521	1.425	4.2	16	117	0.1	6.26	178	-0.5
20221014_2254	42.530	1.449	8.7	19	100	0.1	5.4	93	-0.5
20221015_0011	42.539	1.449	9.8	8	143	0.0	12.06	1433	-1.3
20221015_0102	42.523	1.441	4.1	53	48	0.1	3.32	14	0.1
20221020_0729	42.517	1.416	3.5	8	150	0.0	10.99	534	-0.6

DATE	LAT (º)	LON (º)	DEPTH (km)	NLECT	GAP (º)	RMS (s)	SEMEE (km)	VOL (km3)	MAG ICGC
20221023_0928	42.548	1.419	6.7	19	60	0.1	6.46	172	-0.6
20221025_2302	42.528	1.446	6.3	51	48	0.1	2.58	14	0.4
20221026_0535	42.525	1.431	3.2	18	82	0.1	5.59	105	-0.6
20221027_2249	42.533	1.447	8.5	20	60	0.1	5.28	99	-0.6
20221029_0717	42.520	1.437	6.0	77	48	0.1	2.5	13	1.2
20221106_0427	42.516	1.433	7.6	26	57	0.1	3.59	32	-0.3
20221107_1733	42.513	1.429	2.0	12	118	0.1	12.8	914	-0.7
20221108_0230	42.531	1.445	7.4	27	63	0.1	4.03	92	-0.3
20221108_0231	42.502	1.421	2.1	12	111	0.0	6.16	123	-1.1
20221108_2057	42.521	1.420	2.0	8	186	0.1	11.43	520	-0.9
20221110_1315	42.500	1.416	5.8	51	79	0.1	3.3	39	0.9
20221113_0606	42.508	1.419	5.3	14	115	0.1	5.96	149	-0.8
20221116_0211	42.526	1.437	9.3	12	130	0.1	5.68	93	-0.8
20221116_0346	42.533	1.433	6.2	24	65	0.1	5.18	60	-0.7
20221119_0721	42.524	1.439	5.1	56	48	0.1	3.31	35	0.8
20221123_0241	42.532	1.441	6.0	46	52	0.1	3.76	28	0.2
20221211_0111	42.509	1.410	2.1	26	95	0.1	4.61	40	-0.2
20221215_0355	42.522	1.428	1.6	49	49	0.1	3.65	41	0.5
20221220_1221	42.494	1.404	0.2	27	74	0.1	3.76	52	-0.1
20221220_1252	42.503	1.444	10.2	30	82	0.1	5.48	113	0.1
20221223_1048	42.521	1.436	5.5	64	48	0.1	2.33	8	0.8
20221223_1051	42.521	1.424	3.7	38	49	0.2	4.27	44	0.6
20221226_0526	42.542	1.459	9.9	18	83	0.1	5.67	145	-0.5
20221229_0103	42.522	1.434	5.9	82	48	0.1	2.66	17	1.2
20230103_1602	42.510	1.407	-1.0	11	111	0.1	8.04	135	-0.7
20230108_1806	42.502	1.415	2.4	12	118	0.0	10.8	662	-0.6
20230109_1319	42.534	1.421	6.9	22	120	0.1	6.06	158	0.0
20230110_0714	42.538	1.428	7.0	12	134	0.1	8.79	630	-0.4
20230110_0715	42.520	1.428	3.1	10	141	0.1	8.9	616	-0.6
20230114_0544	42.514	1.435	6.6	19	65	0.1	6.54	177	-0.1
20230114_1311	42.553	1.450	9.7	11	94	0.0	6.68	134	-0.6
20230115_0242	42.548	1.432	8.4	15	89	0.1	7.16	262	-0.5
20230115_1423	42.518	1.427	4.2	18	115	0.1	7.76	244	-0.5
20230115_2050	42.516	1.434	4.8	16	102	0.1	5.45	64	-0.6
20230115_2158	42.539	1.447	8.4	8	142	0.0	15.65	3150	-0.7
20230117_1800	42.492	1.417	-1.8	9	152	0.0	15.3	2925	-0.6
20230119_0451	42.511	1.412	-0.9	7	142	0.1	20.61	2626	-0.1
20230121_0333	42.492	1.406	2.7	13	120	0.3	5.97	313	-0.3
20230121_1045	42.506	1.409	-1.0	6	157	0.0	13.9	2322	-0.9
20230122_0243	42.517	1.425	7.9	25	66	0.1	4.49	53	-0.4
20230123_0906	42.536	1.421	3.5	11	136	0.2	11.22	900	-0.3
20230201_0529	42.524	1.441	6.7	46	53	0.1	3.89	58	0.2
20230201_0551	42.516	1.473	14.3	14	107	0.1	10.31	703	-0.7
20230201_1045	42.528	1.431	6.2	24	90	0.1	5.64	100	0.1
20230205_0855	42.568	1.390	7.6	17	78	0.2	5.17	137	-0.3
20230206_1422	42.518	1.423	0.5	5	217	0.0	21.38	13196	-0.9
20230209_1750	42.525	1.420	5.9	24	89	0.1	4.36	36	-0.1
20230211_0501	42.512	1.408	-0.8	13	110	0.1	6.66	130	-0.8
20230217_2135	42.513	1.408	-0.2	16	109	0.1	5.06	39	-0.2
20230220_0524	42.512	1.406	0.3	8	153	0.0	10.95	788	-0.9
20230220_0750	42.518	1.420	5.2	18	115	0.1	6.32	86	-0.4
20230221_1214	42.509	1.432	6.4	35	47	0.1	3.51	38	0.4
20230222_0339	42.503	1.412	-1.4	7	160	0.0	15.06	1166	-0.9
20230222_0502	42.504	1.418	0.5	6	161	0.1	17.71	5066	-1.4
20230222_0602	42.517	1.425	2.8	109	48	0.3	3.01	15	2.3
20230222_0623	42.519	1.423	5.1	22	80	0.2	5.18	94	0.0
20230224_0621	42.510	1.423	4.9	8	144	0.1	15.89	2834	-0.6
20230224_0836	42.516	1.421	4.3	7	151	0.0	18.19	4686	-0.6
20230225_0029	42.517	1.412	1.3	12	120	0.1	4.92	45	-0.9
20230305_1845	42.506	1.425	8.0	28	60	0.1	4.94	77	-0.2

DATE	LAT (º)	LON (º)	DEPTH (km)	NLECT	GAP (º)	RMS (s)	SEMEE (km)	VOL (km3)	MAG ICGC
20230308_0452	42.515	1.430	3.4	57	48	0.2	2.72	11	0.5
20230309_2028	42.518	1.417	1.4	16	115	0.1	6.25	124	-0.6
20230309_2359	42.504	1.424	2.5	10	130	0.0	8.7	335	-0.6
20230311_0950	42.513	1.412	2.5	18	117	0.2	7.68	275	-0.2
20230312_1226	42.534	1.445	5.6	40	52	0.1	3.3	40	0.4
20230321_0143	42.519	1.427	4.3	39	58	0.2	3.04	18	0.1
20230321_0152	42.503	1.410	1.3	12	116	0.2	9.71	410	-1.0
20230327_0058	42.513	1.434	8.1	18	119	0.1	7.28	179	-0.8
20230327_1204	42.514	1.429	3.2	34	97	0.1	5.39	98	0.2
20230328_1007	42.518	1.429	5.0	74	48	0.1	2.78	19	1.6
20230330_1948	42.510	1.407	1.6	19	95	0.2	5.58	152	-0.7

Taula. 4.1. Resultat detallat de la relocalització dels sismes. LAT= latitud (º), LON=longitud (º), DEPTH=profunditat (km), NLECT= nombre de lectures, GAP=*gap* (º), RMS (s), SEMEE= llargada del semieix major de l'el·lipsoide d'error (km), SEmEE= llargada del semieix menor de l'el·lipsoide d'error (km), SEmigEE= llargada del semieix mig de l'el·lipsoide d'error (km), VOL= volum de l'el·lipsoide d'error (km^3), MAG_ICGC= magnitud local determinada per l'ICGC.

Gràfics

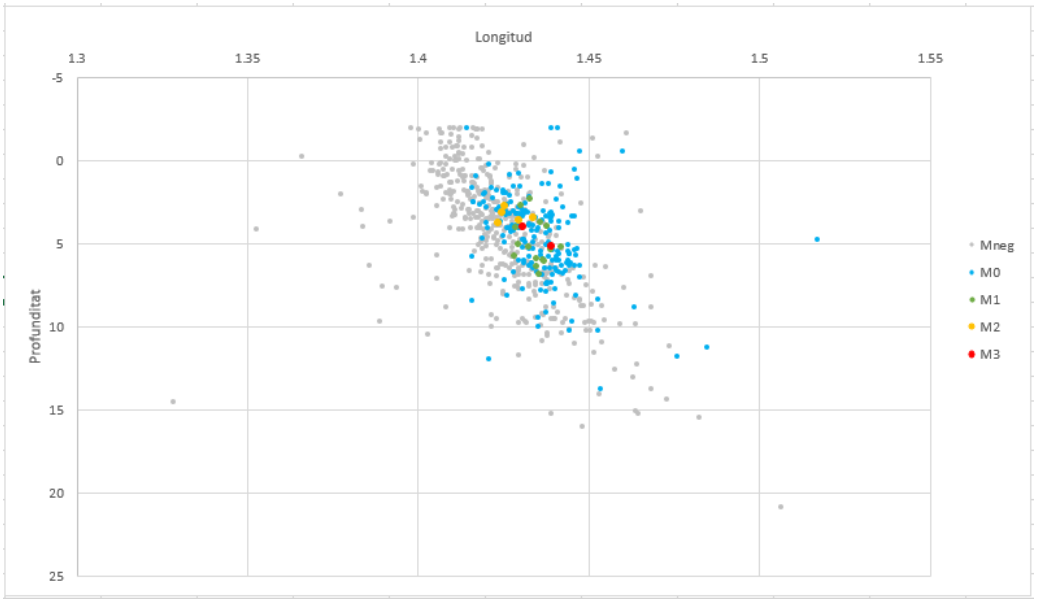


Fig. 4.2. Distribució profunditat-longitud de tota la sèrie sísmica estudiada. Els sismes es representen en diferent color i mida en funció de la seva magnitud.

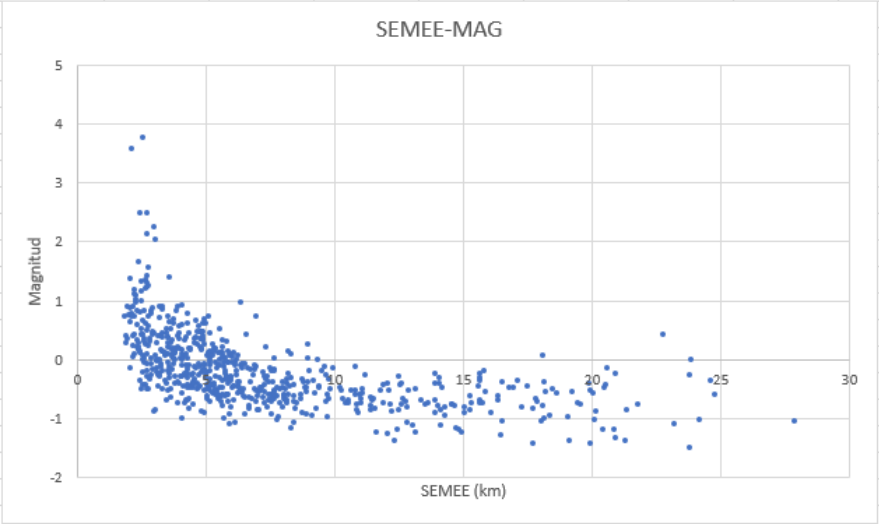


Fig. 4.3. Gràfic llargada del semieix major de l'el·lipsoide d'error-magnitud. S'hi observa una relació inversament proporcional.

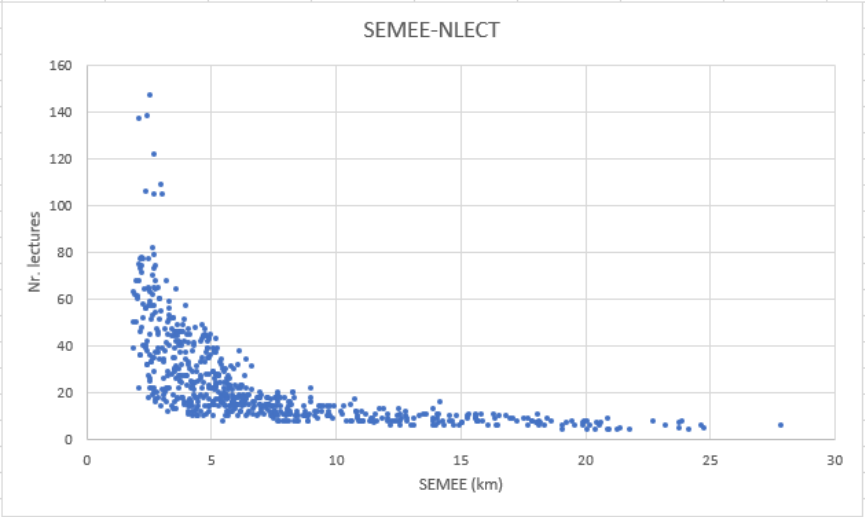


Fig. 4.4. Gràfic longitud del semieix major de l'el·lipsoide d'error-nombre de lectures d'estacions. S'hi observa una relació inversament proporcional.

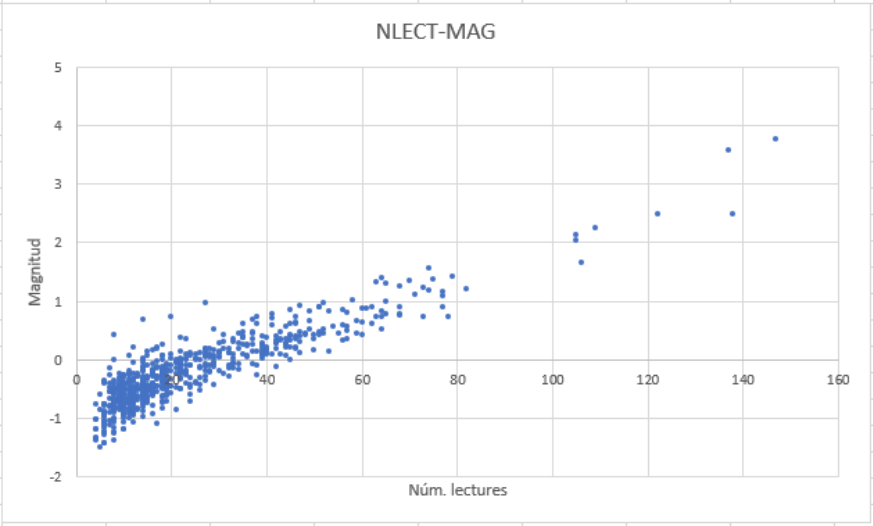


Fig. 4.5. Gràfic nombre de lectures d'estacions-magnitud. S'hi observa una relació directament proporcional.

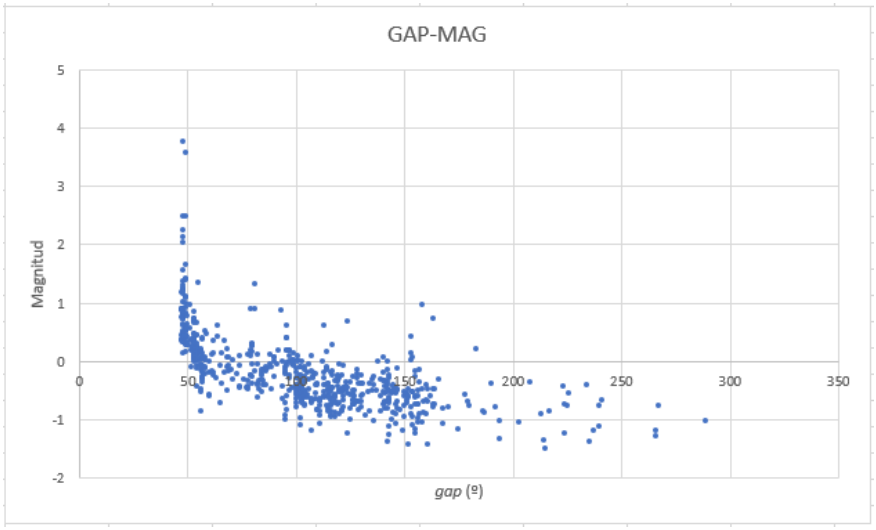


Fig. 4.6. Gràfic *gap*-magnitud. S'hi observa una relació inversament proporcional.

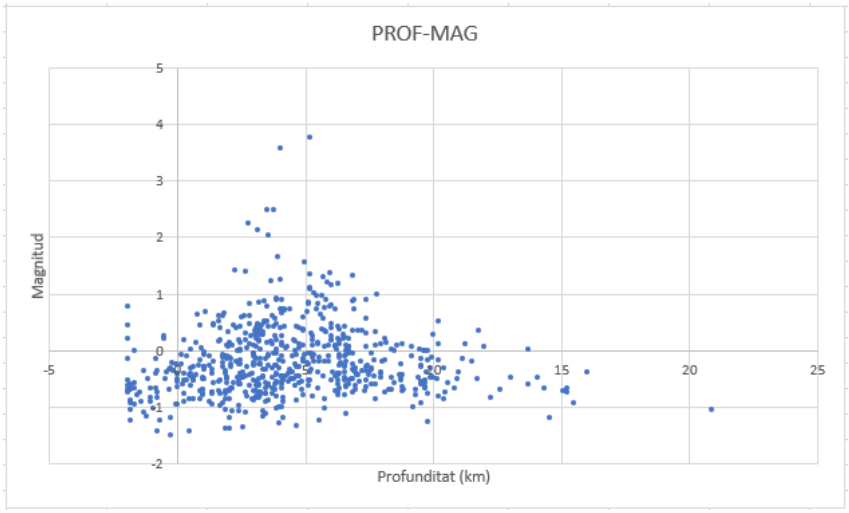


Fig. 4.7. Gràfic profunditat-magnitud. No s'observa cap tipus de relació de dependència. Els sismes que es localitzen a profunditats inferiors a 12 km són de molt baixa magnitud (Ml<0.5) i els que es situen a menys de 2 km de profunditat, de baixa magnitud (Ml<1)

Anàlisi del sisme de Ml=3.8 i posteriors (1 de febrer de 2022 02:02h a 2 de febrer de 2022 23:59h)

Taula de resultats

DATE	LAT	LON	DEPTH	NLECT	GAP	RMS	SEMEE	MAG
20220201_0202	42.52283333	1.4415	4.372	147	48	0.2	2.33	3.763
20220201_0206	42.5215	1.436	4.328	6	234	0.07	20.71	-0.421
20220201_0206	42.5245	1.444166667	5.998	27	159	0.13	6.6	0.967
20220201_0207	42.51433333	1.437666667	5.383	11	153	0.1	17.84	0.057
20220201_0207	42.535	1.4465	6.525	20	164	0.05	7.14	0.723
20220201_0210	42.52716667	1.439833333	4.021	106	49	0.27	2.47	1.651
20220201_0223	42.53616667	1.431666667	1.032	46	50	0.23	3.66	0.64
20220201_0230	42.525	1.441166667	3.669	52	48	0.25	3.43	0.437
20220201_0245	42.51466667	1.441	0.9	15	154	0.11	8.48	0.136
20220201_0301	42.5335	1.429833333	4.152	9	166	0.06	14.15	-0.309
20220201_0315	42.52383333	1.446333333	3.669	52	48	0.26	3.16	0.519
20220201_0317	42.52183333	1.454166667	-1.121	8	208	0.06	15.73	-0.366
20220201_0320	42.51966667	1.445166667	4.021	45	48	0.16	2.67	0.43
20220201_0558	42.52733333	1.4425	3.01	49	49	0.29	3.82	0.832
20220201_0619	42.52333333	1.439666667	3.845	65	48	0.24	2.87	0.768
20220201_0628	42.512	1.448	0.637	22	154	0.22	9.01	0.007
20220201_0628	42.52033333	1.418833333	3.977	8	153	0.11	22.63	0.426
20220201_0644	42.52	1.437833333	3.977	7	156	0.03	23.27	-0.264
20220201_0814	42.51983333	1.425	8.283	17	68	0.12	6.19	0.199
20220201_0831	42.52516667	1.460833333	-1.648	8	138	0.22	23.6	-0.006
20220201_1326	42.51133333	1.4285	4.064	47	49	0.18	4.09	0.921
20220201_1638	42.51583333	1.454333333	10.393	29	58	0.09	5.46	0.523
20220201_1745	42.5075	1.4395	7.536	33	54	0.07	2.53	0.313
20220201_2121	42.5265	1.433166667	3.845	37	53	0.08	2.81	0.243
20220202_0412	42.513	1.426	2.702	36	53	0.07	2.1	0.04
20220202_0526	42.51133333	1.408833333	8.942	14	110	0.05	4.02	-0.688
20220202_0814	42.5115	1.447333333	8.327	22	99	0.05	3.24	0.146
20220202_0826	42.513	1.414333333	3.537	15	100	0.1	5.06	-0.461
20220202_1133	42.51916667	1.435333333	9.909	39	50	0.05	1.74	0.277
20220202_1205	42.5365	1.4325	9.909	18	129	0.07	3.57	-0.389
20220202_1437	42.5115	1.433	5.515	20	86	0.05	2.74	-0.345
20220202_1450	42.52916667	1.450166667	7.756	10	142	0.03	4.58	-0.417
20220202_1914	42.53016667	1.470166667	13.381	12	140	0.05	5.72	-0.591
20220202_2029	42.517	1.435166667	6.745	48	48	0.06	2.17	0.416
20220202_2030	42.52216667	1.426833333	6.042	12	125	0.04	4.24	-0.659
20220202_2333	42.47333333	1.392666667	3.757	14	104	0.05	3.93	-0.771
20220202_2334	42.53416667	1.415166667	3.361	8	137	0.03	8.3	-1.023
20220202_2335	42.51633333	1.4365	7.097	62	48	0.07	1.92	0.719

Taula. 4.1. Resultat de la relocalització del sisme de Ml=3.8 i dels posteriors fins el dia 3 de febrer. LAT= latitud (º), LON=longitud (º), DEPTH=profunditat (km), NLECT= nombre de lectures, GAP=*gap* (º), RMS (s), SEMEE= llargada del semieix major de l'el·lipsoide d'error (km), MAG_ICGC= magnitud local determinada per l'ICGC.

Gràfic de distribució

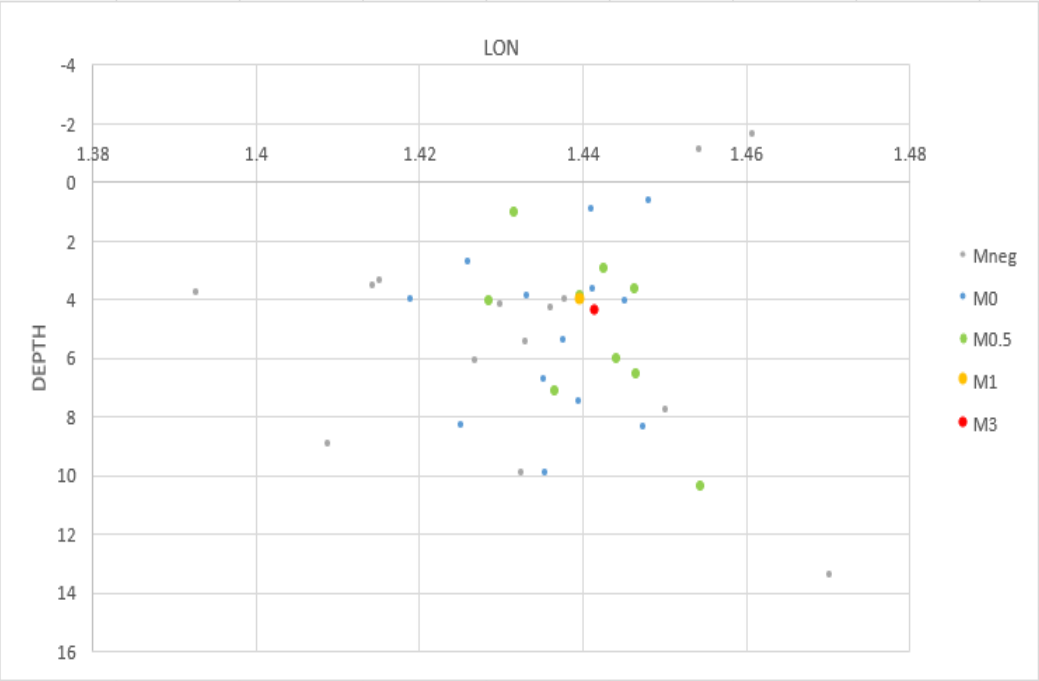


Fig. 4.8. Gràfic de distribució longitud-profunditat pel sismes de major magnitud detectat i les seves rèpliques. Els sismes de major magnitud estan més agrupats entre ells.

ANNEX 5. Cartografia neotectònica

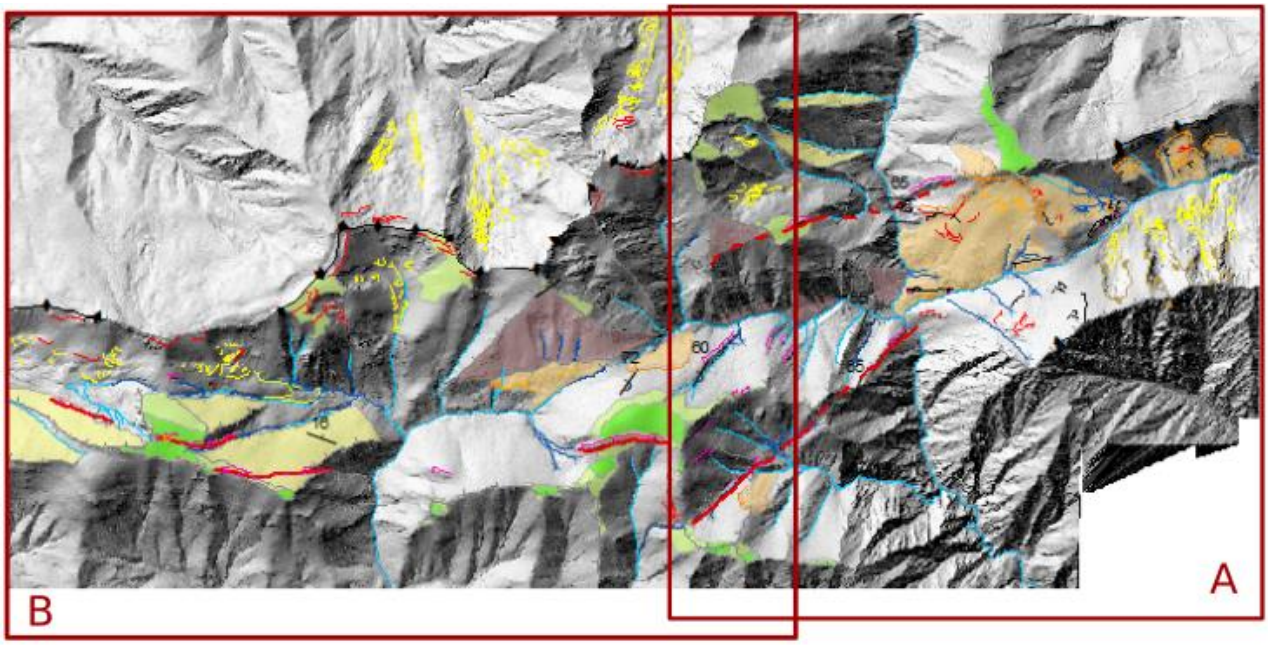
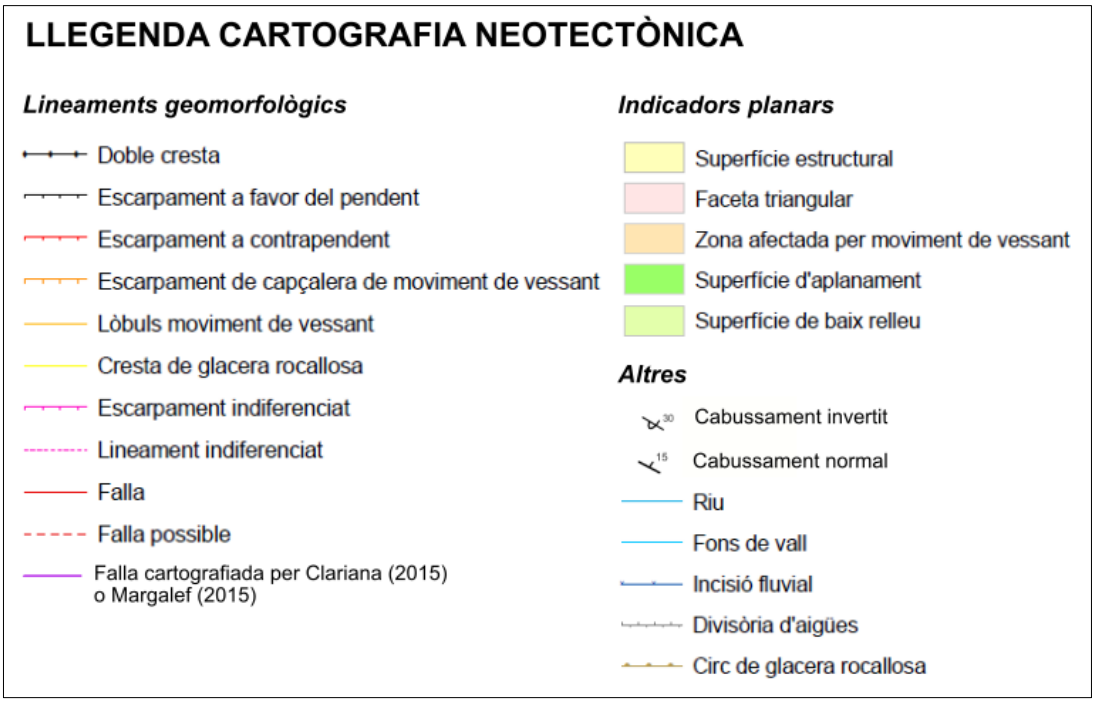
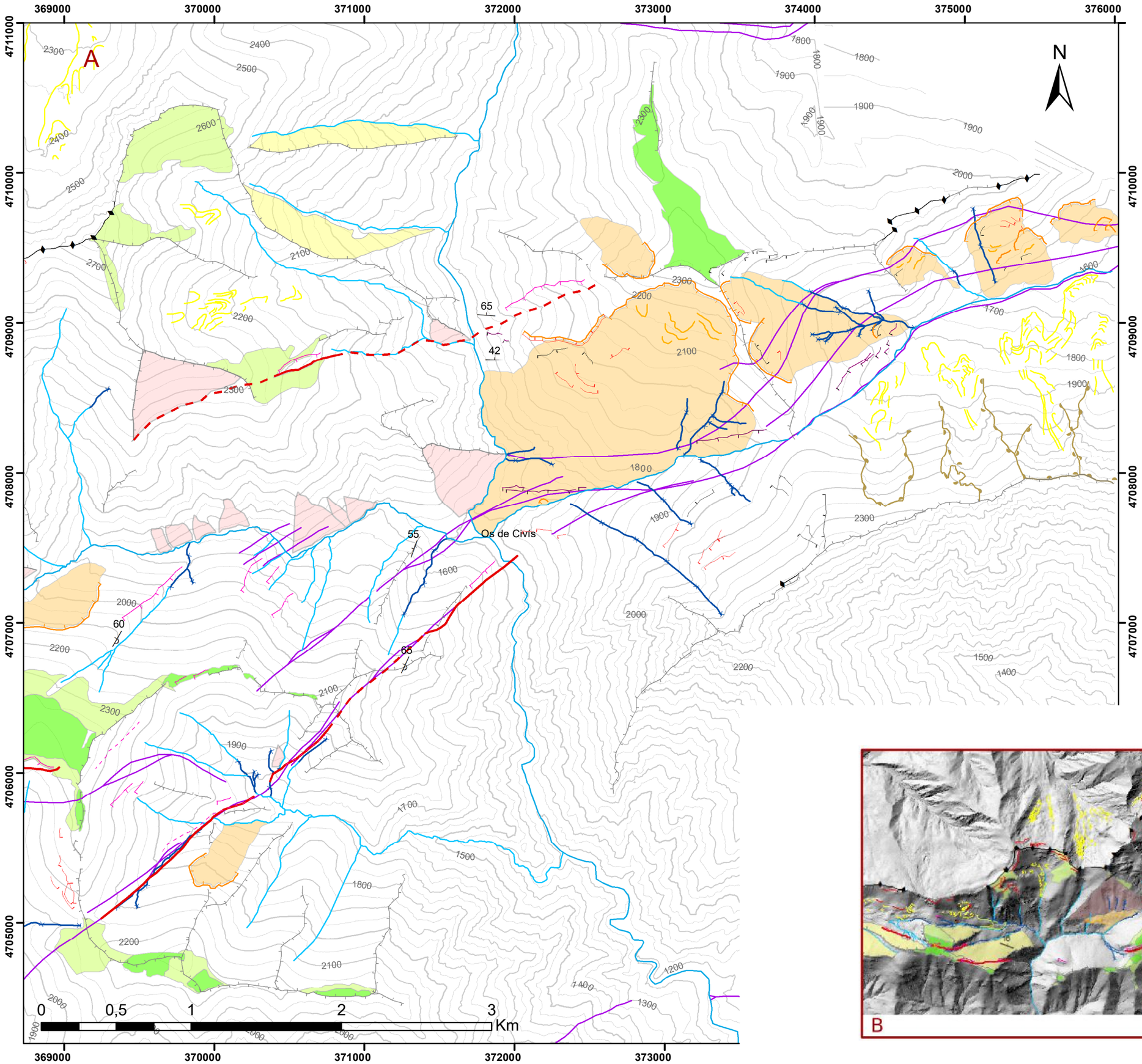


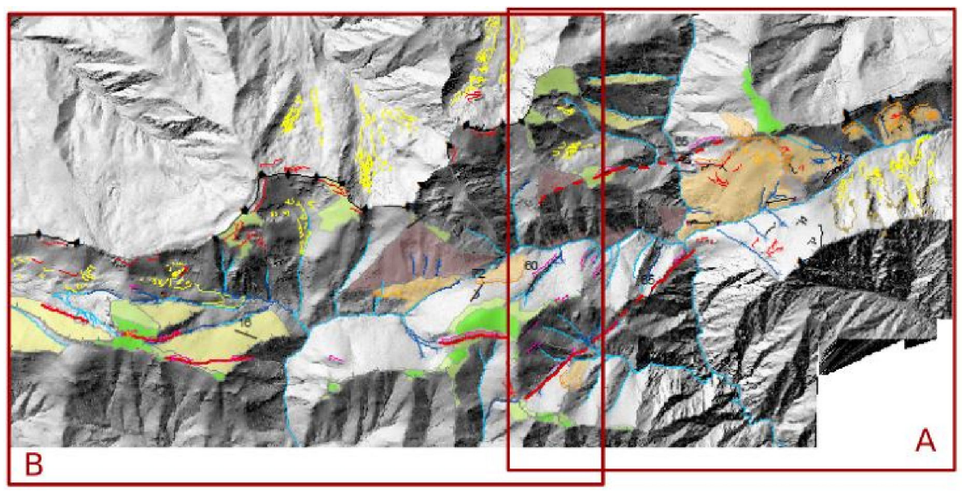
Fig. 5.1. Divisió de la cartografia realitzada a la zona d'estudi en dues fulles A-3. Al cos del treball es pot consultar la cartografia sobre la base LiDAR, i als dos fulls següents es mostra sobre la base topogràfica.



CARTOGRAFIA NEOTECTÒNICA DELS VOLTANTS D'OS DE CIVIS

Equidistànica corbes nivell: 50m
Mapa a escala 1:25.000
ETRS 1989 Zona 31N
Llegenda disponible a l'Annex 5





B

N

74

72

60

16

0 0,5 1 2 3 Km

ANNEX 6. Perfils topogràfics a l'*escarpament de Trescull*

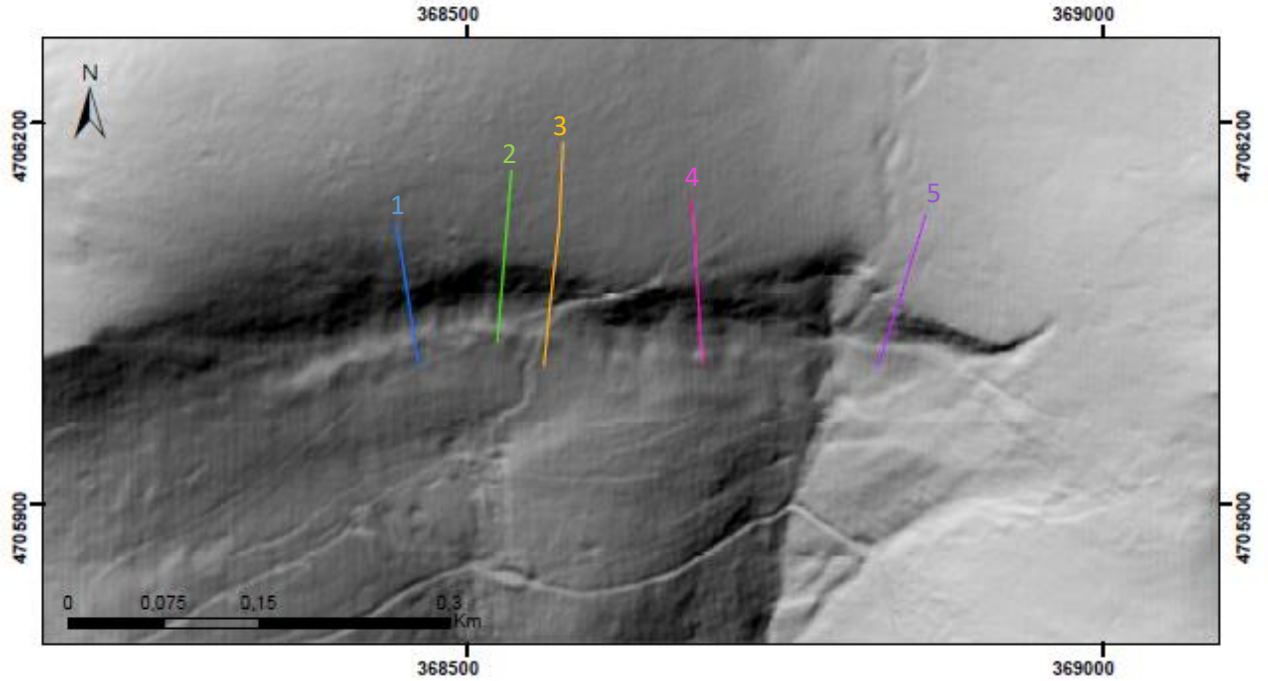


Fig. 6.1. Mapa de situació dels 5 perfils topogràfics realitzats a *l'escarpament de Trescull*

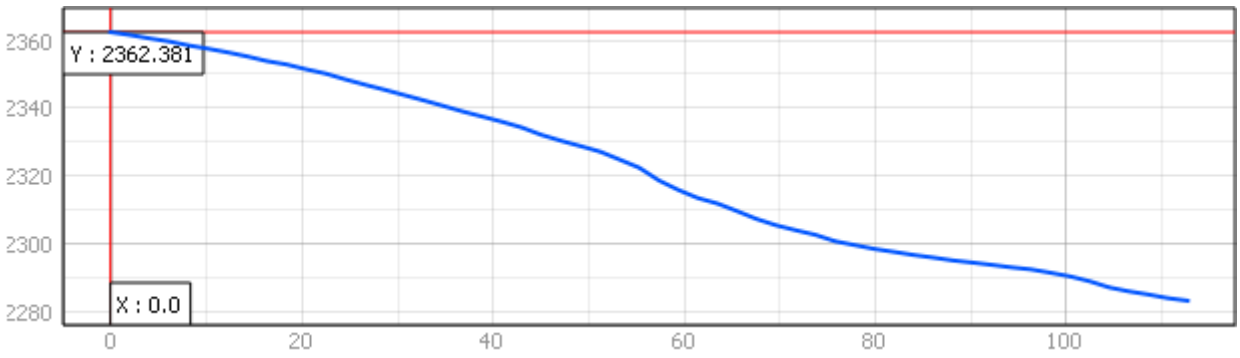


Fig. 6.2. Perfil 1. A l'eix vertical es mostra l'alçada en metres i a l'eix horitzontal la distància. És un perfil realitzat en direcció N-S

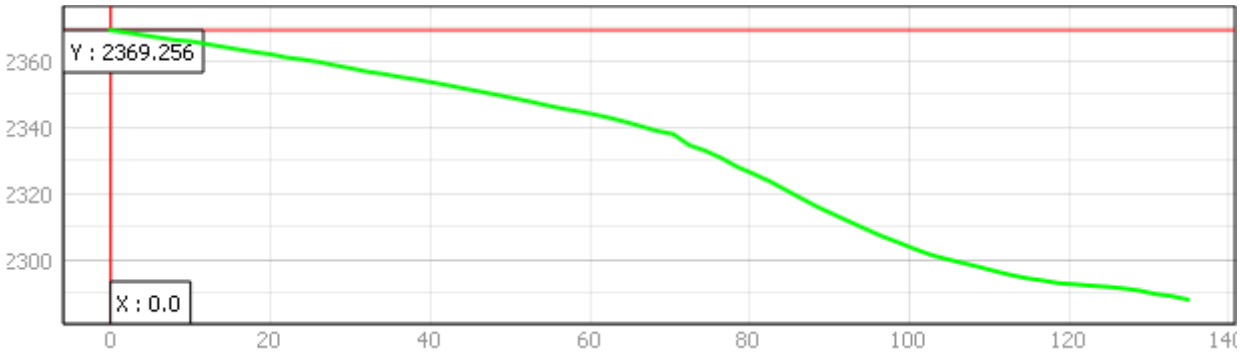


Fig. 6.3. Perfil 2. A l'eix vertical es mostra l'alçada en metres i a l'eix horitzontal la distància. És un perfil realitzat en direcció N-S

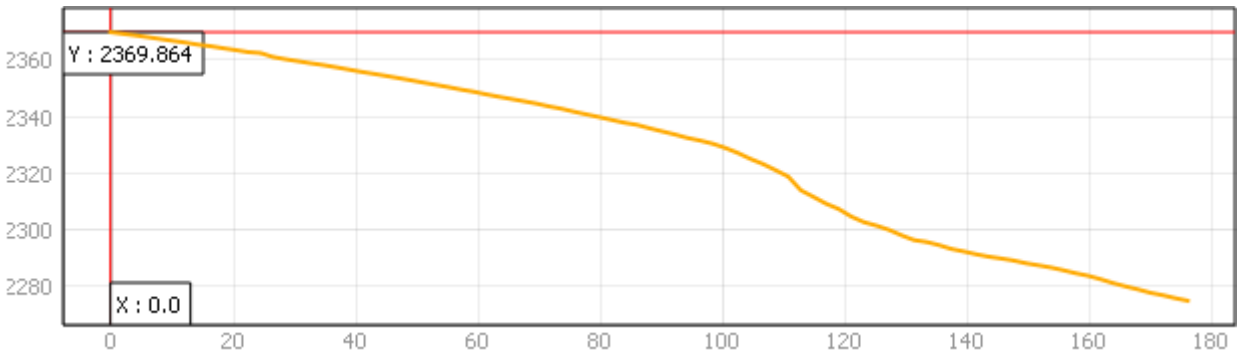


Fig. 6.4. Perfil 3. A l'eix vertical es mostra l'alçada en metres i a l'eix horitzontal la distància. És un perfil realitzat en direcció N-S

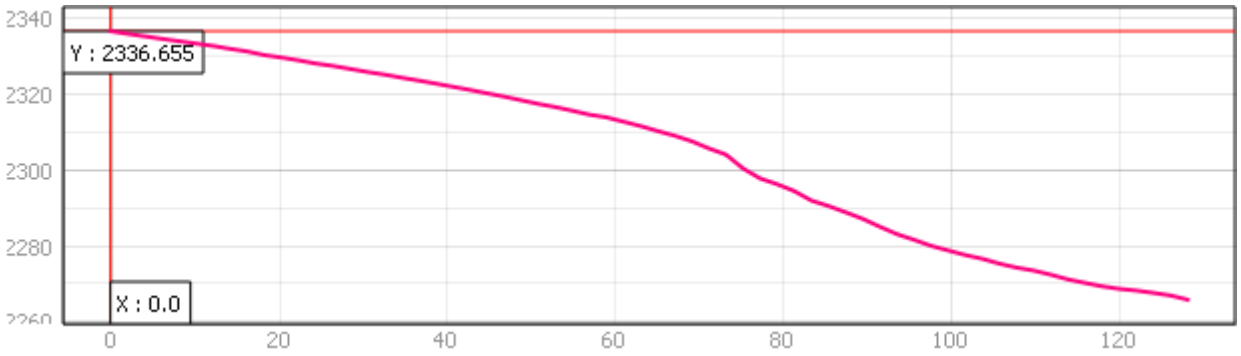


Fig. 6.5. Perfil 4. A l'eix vertical es mostra l'alçada en metres i a l'eix horitzontal la distància. És un perfil realitzat en direcció N-S

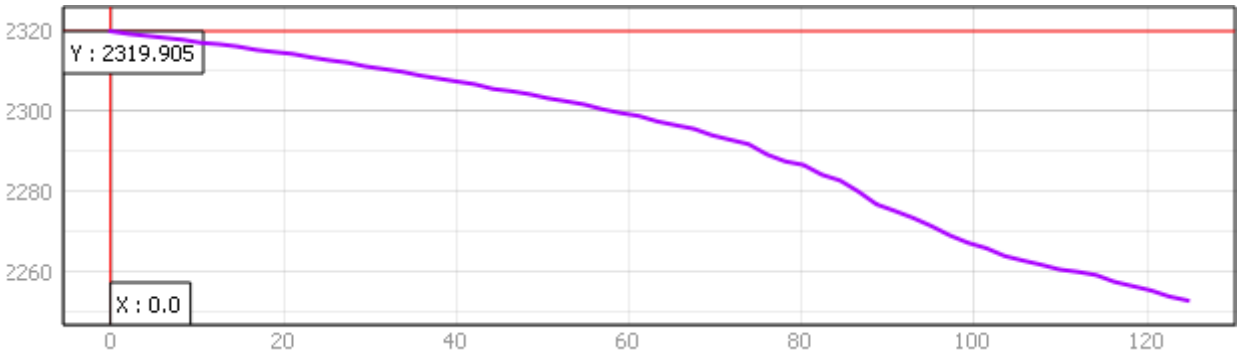


Fig. 6.6. Perfil 5. A l'eix vertical es mostra l'alçada en metres i a l'eix horitzontal la distància. És un perfil realitzat en direcció N-S

Annex 7. Tall geològic

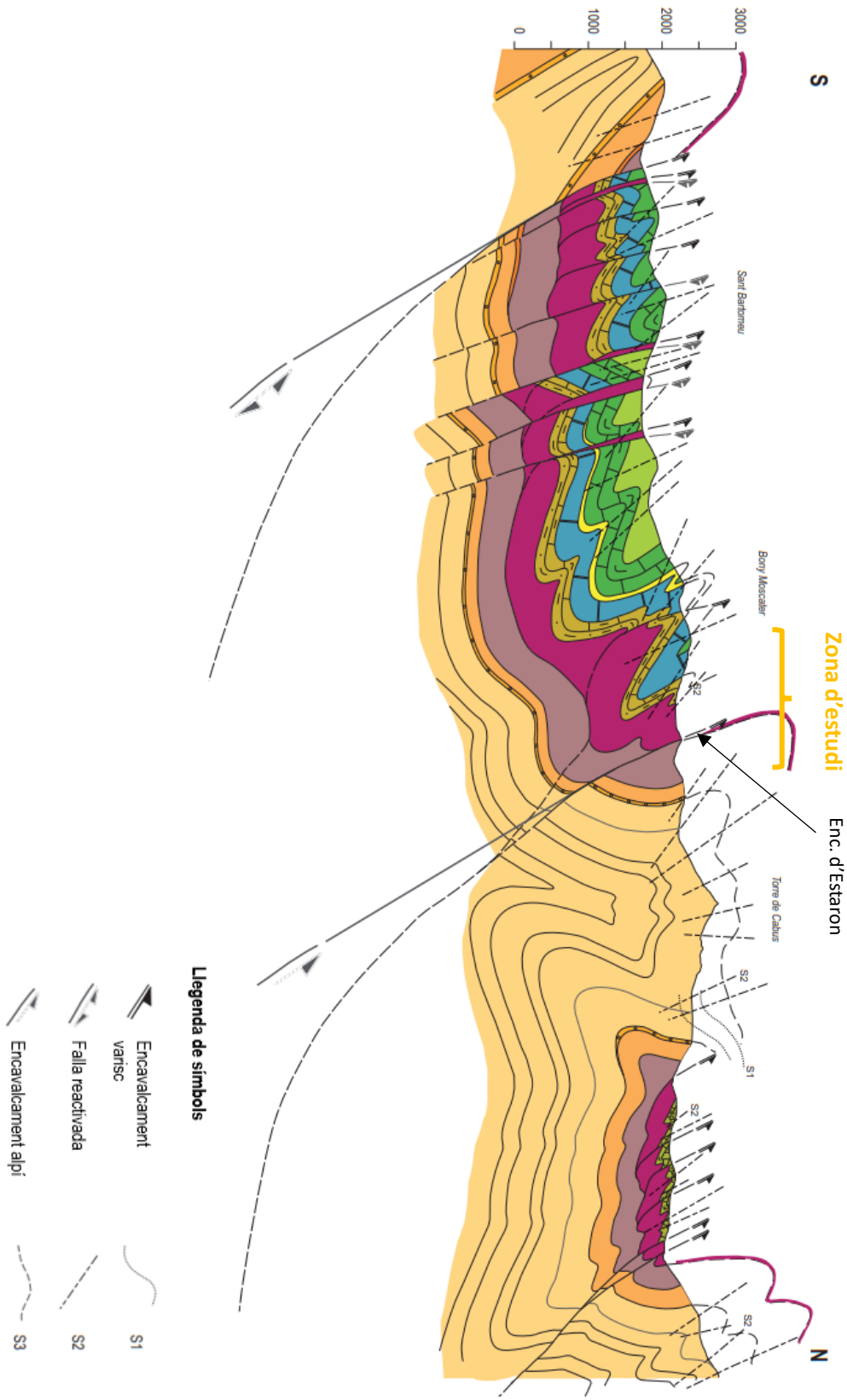


Fig. 6.6. Tall geològic de l'anticlinal de Llavorsí, on s' ha indicat la zona d'estudi d'aquest treball amb un claudàtor groc per sobre. S'observen diversos encavalcaments arrelats al nivell de desenganxament silurià i 3 encavalcaments de major entitat (alpins) que afecten tota la sèrie, un d'ells el d'Estaron (indicat al tall). Mateixa llegenda d'unitats que a la figura 5. Modificat de Clariana (2015).