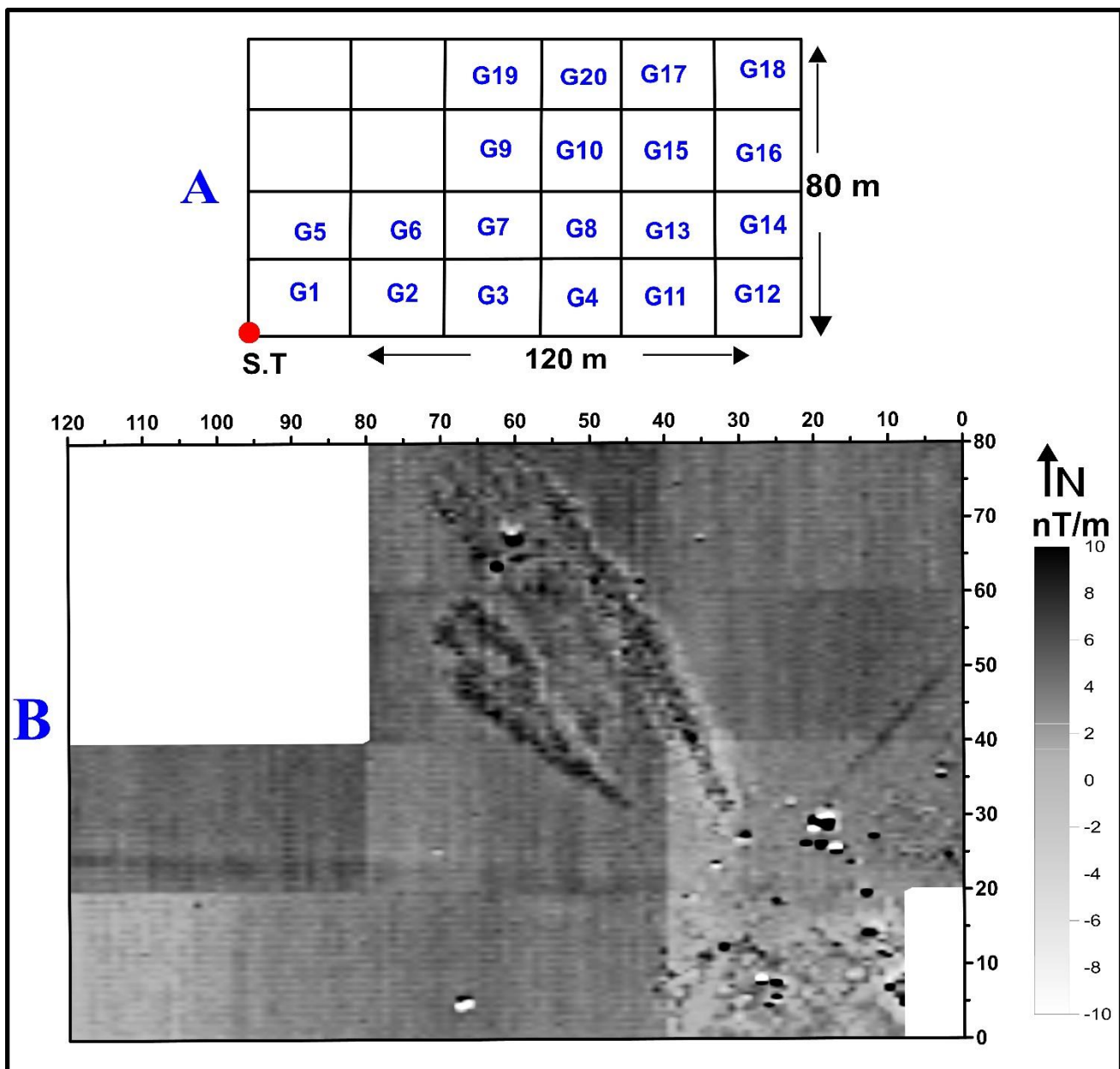
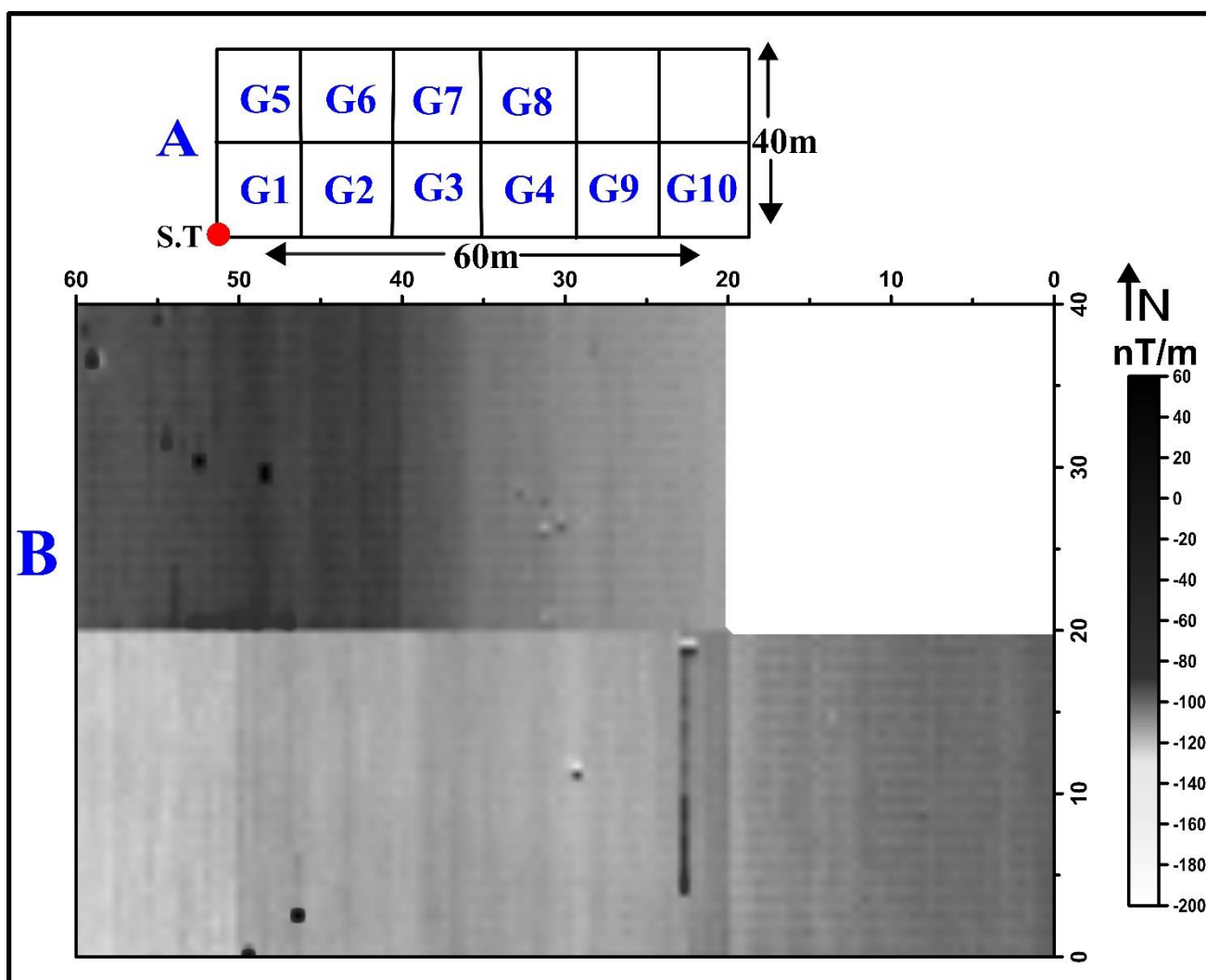
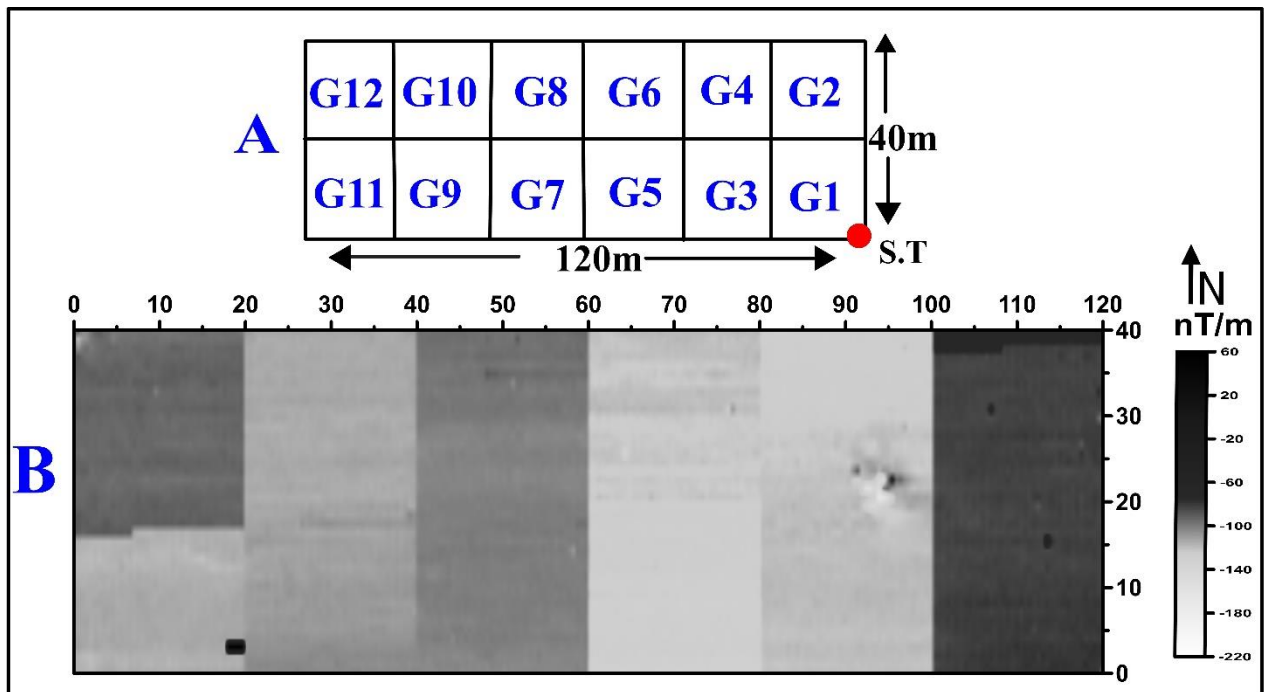




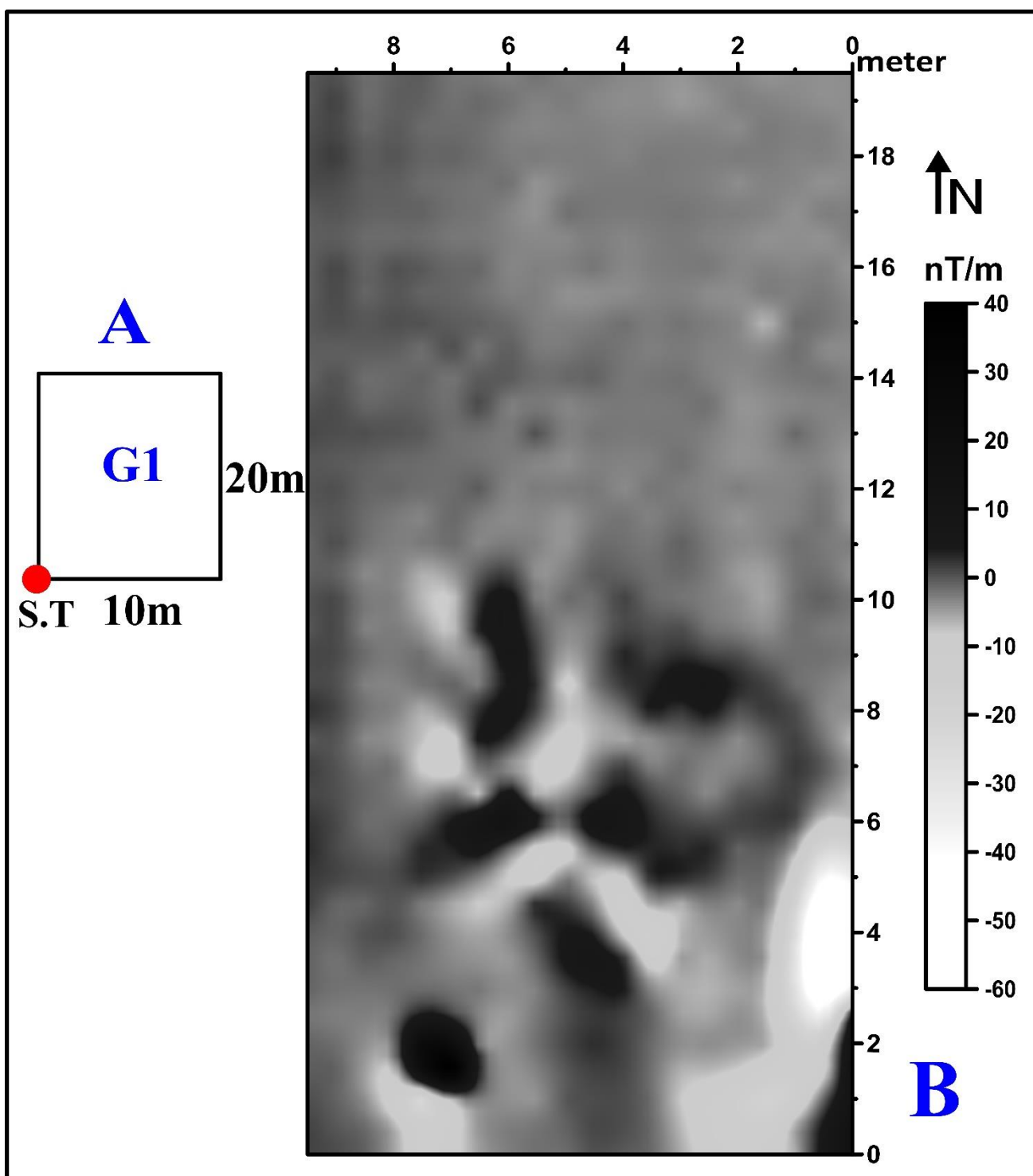
**Figure S1.** A) Grid layout of the gradiometer field work (Site A). Measurements of the vertical magnetic gradient were conducted using 1 m parallel traverses at 0.5 m sampling interval. B) Shade-plot of the raw magnetic data acquired at the Western region of valley temple of Snofru Bent Pyramid in Dahshour.



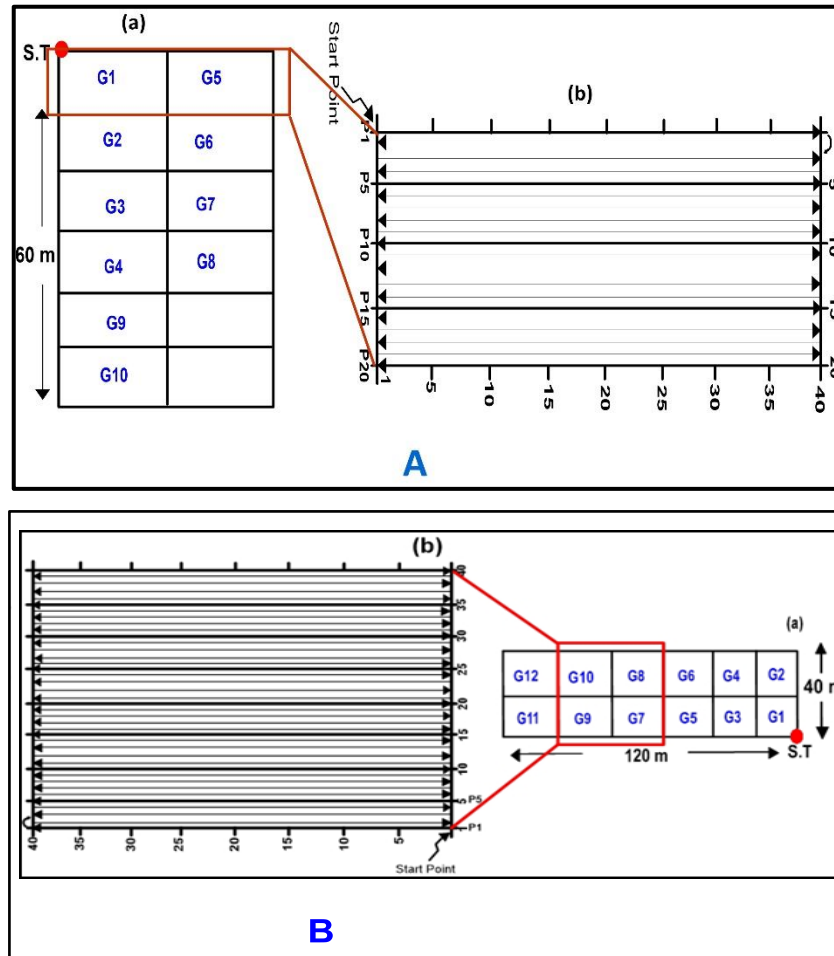
**Figure S2.** A) Grid layout of the gradiometer field work (**Site B**). Measurements of the vertical magnetic gradient were conducted using 0.5 m parallel traverses at 0.5 m sampling interval. B) Shade-plot of the raw magnetic data acquired at the eastern region of valley temple of Snofru Bent Pyramid in Dahshour.



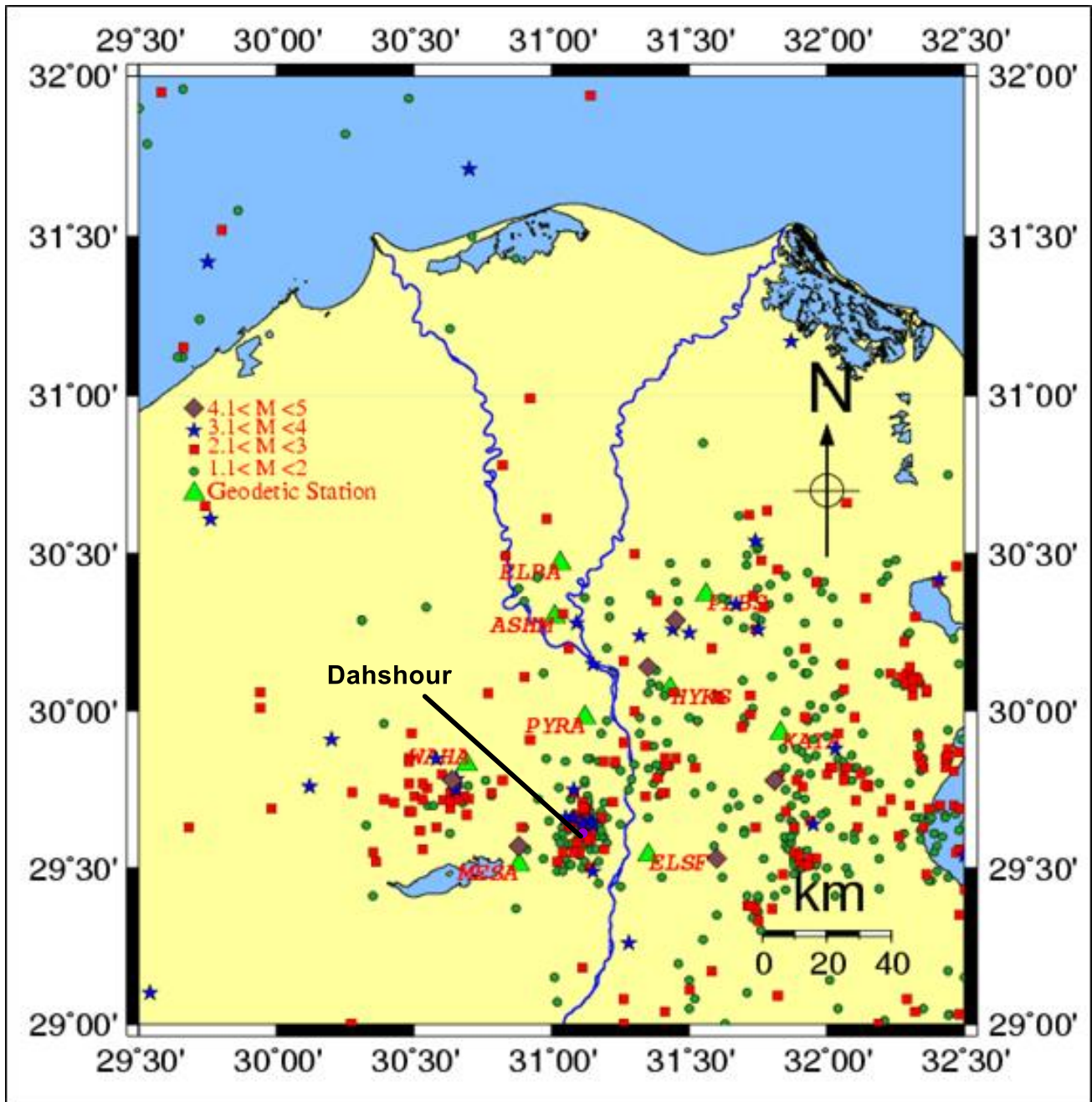
**Figure S3.** A) Grid layout of the gradiometer field work (**Site C**). Measurements of the vertical magnetic gradient were conducted using 1 m parallel traverses at 0.5 m sampling interval. B) Shade-plot of the raw magnetic data acquired.



**Figure S4.** A) Grid layout of the gradiometer field work (**Site D**). Measurements of the vertical magnetic gradient were conducted using 0.5 m parallel traverses at 0.5 m sampling interval. B) Shade-plot of the raw magnetic data acquired.



**Figure S5. A)** Grid layout of magnetic measurements in site B and the selected grids for GPR survey are in the N-S direction. **B)** (a) Grid layout of magnetic measurements in site C. (b) the selected grids for GPR survey in the (E-W direction).



**Figure S6.** Seismicity of the study area from 2005 to 2011.

**Table S1.** The geodetic stations and horizontal movements from 2005 to 2011.

| Station | Longitude             | Latitude              | 2005 - 2011 |                  |          |                  |
|---------|-----------------------|-----------------------|-------------|------------------|----------|------------------|
|         |                       |                       | de<br>mm    | $\delta e$<br>mm | dn<br>mm | $\delta n$<br>mm |
| ASHM    | 31°:00'27.18122"<br>E | 30°:18'07.23463"<br>N | 1.6         | 0.6              | -2.3     | 0.6              |
| ELBA    | 31°:01'45.84779"<br>E | 30°:27'57.36778"<br>N | 3           | 0.6              | -4.2     | 0.6              |
| ELSF    | 31°:21'33.09840"<br>E | 29°:32'45.07688"<br>N | 14.8        | 0.6              | -5.1     | 0.6              |
| HYKS    | 31°:25'31.46045"<br>E | 30°:04'11.73007"<br>N | -6.4        | 0.6              | 7.5      | 0.6              |
| KATA    | 31°:49'45.86243"<br>E | 29°:55'35.25609"<br>N | -2.1        | 0.6              | -1.8     | 0.6              |
| MESA    | 30°:53'16.62653"<br>E | 29°:30'51.96060"<br>N | -7.4        | 0.6              | -2.6     | 0.6              |
| PLBS    | 31°:33'40.66608"<br>E | 30°:22'14.26154"<br>N | 6.6         | 0.6              | -2.1     | 0.6              |
| PYRA    | 31°:07'19.83984"<br>E | 29°:58'32.37249"<br>N | 2.6         | 0.6              | 2.5      | 0.6              |
| WAHA    | 30°:41'31.34515"<br>E | 29°:49'37.21269"<br>N | 9.1         | 0.7              | -9.4     | 0.6              |

**Table (S2).** The displacement and strain parameters of the observation period from 2005 to 2011.

| Block No. &<br>Stations ID |      | Displacement and RMS in (mm) |            |      |            | Principle Strain Rate and Sd. Dv.( $\sigma$ ) |            |                     |
|----------------------------|------|------------------------------|------------|------|------------|-----------------------------------------------|------------|---------------------|
|                            |      | de                           | $\delta e$ | dn   | $\delta n$ | Principle Strain Rate                         |            | Sd. Dv.( $\sigma$ ) |
| I                          | ASHM | 9.4                          | 0.6        | -5.4 | 0.6        | E1                                            | .1995E-06  | .2478E-06           |
|                            | MESA | 13.8                         | 0.6        | -5.3 | 0.6        | E2                                            | -.6644E-07 | .5759E-06           |
|                            | PYRA | 16.9                         | 0.6        | 5.3  | 0.6        | A                                             | 6.7434     | .6753E+02           |
|                            | WAHA | 11.8                         | 0.6        | 2.5  | 0.6        | $\Delta$                                      | .1331E-06  | .6269E-06           |
|                            |      |                              |            |      |            | $\Gamma_{\max}$                               | .2660E-06  | .6269E-06           |
| II                         | ELSF | -0.4                         | 0.6        | -1   | 0.6        | E1                                            | -.1276E-06 | .3319E-06           |
|                            | HYKS | 10                           | 0.6        | 2.9  | 0.6        | E2                                            | -.3938E-06 | .2610E-06           |
|                            | MESA | 13.8                         | 0.6        | -5.3 | 0.6        | A                                             | 113.4368   | .4544E+02           |
|                            | PYRA | 16.9                         | 0.6        | 5.3  | 0.6        | $\Delta$                                      | -.5214E-06 | .4222E-06           |
|                            |      |                              |            |      |            | $\Gamma_{\max}$                               | .2662E-06  | .4222E-06           |
| III                        | ELSF | -0.4                         | 0.6        | -1   | 0.6        | E1                                            | .1527E-06  | .1232E-06           |
|                            | HYKS | 10                           | 0.6        | 2.9  | 0.6        | E2                                            | -.1425E-06 | .2380E-06           |
|                            | KATA | 9.3                          | 0.6        | -6.2 | 0.6        | A                                             | 1.2232     | .2600E+02           |
|                            | PLBS | 2.8                          | 0.6        | 8.5  | 0.6        | $\Delta$                                      | .1022E-07  | .2680E-06           |
|                            |      |                              |            |      |            | $\Gamma_{\max}$                               | .2953E-06  | .2680E-06           |
| IV                         | ASHM | 9.4                          | 0.6        | -5.4 | 0.6        | E1                                            | .5396E-07  | .1896E-06           |
|                            | ELBA | 10.4                         | 0.6        | 0.9  | 0.6        | E2                                            | -.2515E-06 | .2779E-06           |
|                            | HYKS | 10                           | 0.6        | 2.9  | 0.6        | A                                             | -60.9554   | .3155E+02           |
|                            | PLBS | 2.8                          | 0.6        | 8.5  | 0.6        | $\Delta$                                      | -.1976E-06 | .3364E-06           |
|                            | PYRA | 16.9                         | 0.6        | 5.3  | 0.6        | $\Gamma_{\max}$                               | .3055E-06  | .3364E-06           |

(E1): The extension

(E2): The compression

(A): The angle of the principle strain

( $\Delta$ ): The dilatation( $\Gamma_{\max}$ ): The maximum shear strain.