CLAIMS:

1. A method of calibrating a radar antenna mounted on a rotatable support, said radar antenna being mounted at a predetermined position relative to a reference point on said rotatable support, the method comprising:

receiving reference data indicative of a position of a target element relative to a reference location, and of a position of said reference point on said rotatable support relative to said reference location;

receiving orientation data indicative of at least one angular position of said rotatable support and antenna measurement data indicative of electromagnetic echo signals received by said radar antenna from said reference target element;

determining a measured position of said target element relative to said radar antenna, based on at least a portion of said antenna measurement data;

determining a reference position of said target element relative to said radar antenna, based on said reference data and on at least a portion of said orientation data; and

determining at least one bias value or function associated with at least one of said orientation data or said antenna measurement data, based on a deviation between the determined measured position and reference position of said target element.

2. The method of claim 1, further comprising:

rotating the rotatable support into two or more different angular positions;

determining two or more respective orientation data instances for each of said different angular positions of said rotatable support, corresponding two or more measured position instances of the target element based on respective electromagnetic echo signals received by the radar antenna at said two or more angular positions, and corresponding reference position instances of the target element based on said respective two or more orientation data instances and the reference data; and

determining at least one bias value or function for each of said two or more different angular positions of the rotatable support based on a deviation between the measured position and the determined reference position of the target element determined for each of said two or more different angular positions of the rotatable support.

3. The method of claim 2, further comprising applying a curve fitting process based on the deviation between the respective determined measured and reference positions instances of the target element, and deriving the at least one bias value or function therefrom.

4. The method of claim 3, wherein the curve fitting process comprises a least mean squares error minimization process.

5. The method of claim 1, wherein the at least one angular position of the rotatable support comprises at least one of the following: a measured azimuth angle of the rotatable support, a measured roll tilt angle of the rotatable support, or a measured pitch tilt angle of the rotatable support.

6. The method of claim 1, wherein at least one of the following:

- determining the reference position of the target element comprises processing data indicative of the at least one angular position of the rotatable support; and
- the reference position and the measured position of the target element are determined relative to a center of the radar antenna, and wherein determining the reference position of the target element comprises determining a position of the center of the radar antenna relative to the reference point of the rotatable support; or
- the radar antenna is a phased array antenna, and the reference position and the measured position of the target element are determined relative to a phase center of said phased array antenna, and wherein determining the reference position of the target element comprises determining a position of said phase center of the radar antenna relative to the reference point of the rotatable support; and
- the reference point is a center of the rotatable support.

7. The method of claim 1, wherein the determining of the measured position of the target element comprises processing data indicative of the electromagnetic echo signal received from target element

8. The method of claim 1, wherein the orientation data comprises a measured elevation angle of the radar antenna, and wherein determining the reference position of

the target element comprises determining a position of the center of the radar antenna relative to the reference point of the rotatable support based on said measured elevation angle.

9. The method of claim 1, comprising generating the reference data by a surveying system configured to measure polar coordinates of said target element, and of said reference point, relative to said reference location.

10. The method of claim 1, wherein the at least one bias value comprises at least one of the following: bias of a measured azimuth angle of the rotatable support, bias of a measured elevation angle of the antenna, bias of a measured roll tilt angle of the rotatable support, or bias of a measured pitch tilt angle of the rotatable support.

11. A system for calibrating a radar system comprising a radar antenna mounted on a rotatable support at a predetermined position relative to a reference point on said rotatable support, the system comprising:

orientation measurement system configured to measure at least one orientation angle of said rotatable support and generate orientation data indicative of at least one angular position of said rotatable support;

a surveying device configured to measure position of a target element, and a position of said reference point on said rotatable support, and generate reference data indicative thereof; and

a control unit comprising one or more processors and memories configured and operable to receive antenna measurement data indicative of electromagnetic echo signals received by said radar antenna from said reference target element, determine a measured position of said target element relative to said antenna based on at least a portion of said antenna measurement data, determine a reference position of said target element relative to said radar antenna based on said reference data and on at least a portion of said orientation data, and determine at least one bias value or bias function associated with at least one of said orientation data or said antenna measurement data, based on a deviation between the determined measured position and reference position of said target element.

12. The system of claim 11 wherein the control unit is configured and operable to generate instructions for rotating the rotatable support into two or more different angular positions, receive from said orientation measurement system two or more respective orientation data instances for each of said different angular positions of said rotatable support, determine corresponding two or more respective measured position instances of the target element based on respective electromagnetic echo signals received by the radar antenna at the two or more different angular positions, determine corresponding reference position instances of the target element based on said respective two or more orientation data instances and the reference data; and determine at least one bias value or function for each of said two or more different angular positions of the rotatable support based on a deviation between the respective determined measured position of the target element and reference position of the target element at each of said two or more different angular positions.

13. The system of claim 12 wherein the control unit is configured and operable to apply a curve fitting process based on the deviation between the respective determined measured and reference positions instances of the target element, and deriving the at least one bias value or function therefrom.

14. The system of claim 11, wherein the at least one angular position of the rotatable support measured by the orientation measurement system comprises at least one of the following: a measured azimuth angle of the rotatable support, a measured roll tilt angle of the rotatable support, and a measured pitch tilt angle of the rotatable support.

15. The system of claim 11, wherein at least one of the following:

- the control unit is configured and operable to determine the reference position and the measured position of the target element relative to a center of the radar antenna;
- the control unit is configured and operable to determine the reference position of the target element based on a position of the center of the radar antenna relative to the reference point of the rotatable support; or

- the radar antenna is a phased array antenna, and wherein the control unit is configured and operable to determine the reference and measured positions of the target element relative to a phase center of said phased array antenna.

16. The system of claim 11, wherein the reference point is a center of the rotatable support, and wherein the control unit is configured and operable to determine the reference position of the target element based on a position of the center of the radar antenna relative to the reference point of the rotatable support.

17. The system of claim 16 wherein the orientation data comprises a measured elevation angle of the radar antenna, and wherein the control unit is configured and operable to determine the position of the center of the radar antenna relative to the reference point of the rotatable support based on said measured elevation angle.

18. The system of claim 11, wherein the surveying device comprises at least one of the following:

- a range finder capable of measuring a distance between said surveying device and the target element, and an angle finder capable of measuring angular position of the target element with respect to said surveying device; or
- a gyro theodolite.

19. The system of claim 11, wherein the target element comprises at least one antennas element coupled to a transponder configured to cause a time delay in the receipt of the electromagnetic signals from said target element.

20. The system of claim 11, wherein the control unit is configured and operable to determine a bias value or function for at least one of the following: a measured azimuth angle of the rotatable support, a measured elevation angle of the antenna, a measured roll tilt angle of the rotatable support, or a measured pitch tilt angle of the rotatable support.