CLAIMS

1. A method for measuring and controlling a magnetic signature of a ship (100) using at least one aerial drone (110) provided with at least one magnetic sensor (120), this method being characterized in that it comprises the following steps,

- obtaining (310) a plurality of magnetic measurements and associated positions, the obtained magnetic measurements further being associated with a heading of the ship;

- modelling (325) magnetization of the ship as a function of the obtained magnetic measurements, associated positions and at least one heading of the ship;

- estimating (330) at least one magnetic field according to the modelling of the magnetization of the ship and of at least one navigation parameter of the ship; and

- controlling (335) a magnetic signature reduction system of the ship as a function of said at least one estimated magnetic field.

2. The method according to claim 1 according to which said at least one aerial drone comprises means for communicating with the ship, the method further comprising a step of transmitting the plurality of magnetic measurements and the associated positions with a data–processing system of the ship, the data–processing system of the ship performing the steps of modelling, estimating at least one magnetic field and of controlling the magnetic signature reduction system, the magnetic signature reduction system comprising a degaussing system of the ship.

3. The method according to claim 1 or claim 2 according to which magnetic measurements are obtained for at least two rectilinear trajectories of said at least one aerial drone moving near the ship.

4. The method according to any one of claims 1 to 3 according to which magnetic measurements are obtained for at least two separate headings of the ship.

5. The method according to any one of claims 1 to 4 according to which magnetic measurements are obtained at a substantially constant height determined as a function of the air draught or of the draught of the ship.

6. The method according to any one of claims 1 to 5 according to which said at least one magnetic sensor is a three axe magnetic sensor having three perpendicular axes in pairs, the obtained magnetic measurements representing the norm of a vector having three components coming from the magnetic sensor.

7. The method according to claim 6 further comprising a calibration phase (300) comprising a step of measuring and correcting a zero error, a step of measuring and correcting a sensitivity zero error and/or a step of measuring and correcting an orthogonality error of the three axes of the magnetic sensor.

8. The method according to any one of claims 1 to 7 further comprising a compensation phase for compensating the magnetic influence of said at least one aerial drone on said at least one magnetic sensor.

9. The method according to any one of claims 1 to 8 according to which the steps of obtaining a plurality of magnetic measurements, of modelling magnetization of the ship, of estimating a magnetic field and of controlling a magnetic signature reduction system are repeated to refine the setting of the magnetic signature reduction system.

10. A set for measuring and controlling a magnetic signature of a ship (100), the set comprising at least one aerial drone (110) provided with of at least one magnetic sensor (120), said at least one aerial drone being configured to obtain (310) a plurality of magnetic measurements and associated positions, the obtained magnetic measurements being associated with a heading of the ship, the set further comprising calculation means configured to model (325) magnetization of the ship as a function of obtained magnetic measurements, associated positions and a heading of the ship, to estimate (330) at least one magnetic field according to a modelling of the magnetization of the ship and of at least one navigation parameter of the ship and to control (335) a magnetic signature reduction system as a function of at least one estimated magnetic field.

11. The set according to claim 10 according to which the calculation means are further configured to control displacements of said at least one aerial drone according to at least two separate trajectories for at least two separate headings of the ship, at a substantially constant height determined as a function of the air draught or of the draught of the ship.

12. The set according to any one of claims 10 to 11 according to which the magnetic signature reduction system comprises a degaussing system of the ship.

13. The set according to any one of claims 10 to 12 according to which the calculation means comprise calculation means of the ship, the set further comprising communication means configured to transfer the plurality of magnetic measurements and associated positions to the calculation means of the ship.

14. The set according to any one of claims 10 to 11 according to which the magnetic signature reduction system comprises a demagnetization system of the ship.