CLAIMS

1. Method for controlling a motion of a target drone inside a geographical area of interest, comprising the steps of :

- acquisition, by a plurality of measuring devices located throughout the geographical area of interest, of a plurality of measures of values of wind parameters, the wind parameters comprising an amplitude and an orientation of the wind;

- determining, from the plurality of measures, boundary conditions, defined as values of the wind parameters at a boundary of a domain surrounding the geographical area of interest;

- determining, by using a first parametric function that depends on the boundary conditions only, a wind field, the wind field providing the values of the wind parameters in any point inside the domain; and,

- controlling the target drone by taking into account the wind field.

2. Method according to claim 1, wherein the first parametric function is obtained through a regularized regression on a plurality of solutions resulting from fine simulations.

3. Method according to claim 2, wherein the step of determining, from the plurality of measures, boundary conditions, uses an inverse model, the inverse model being obtained from the first parametric function.

4. Method according to claim 1, further comprising the step of determining, by using a second parametric function that depends on the boundary conditions only, an exclusion domain, where a condition on the values of the wind parameters is not verified to allow the flight of the target drone, the determination of the wind field being limited to an operational domain defined by subtracting the exclusion domain from the domain.

5. Method according to claim 4, wherein the second parametric function is obtained through a regularized regression on a plurality of solutions resulting from fine simulations.

6. Method according to claim 1, wherein controlling the target drone by taking into account the wind field comprises:

- planning, by a computer onboard the target drone, an optimal trajectory according to a mission that the target drone has to fulfil and an optimization criterion based on the wind field; and,

- controlling the target drone to move according to the optimal trajectory.

7. System for the implementation of a method according to claim 1, comprising:

- a plurality of measuring devices distributed throughout the geographical area of interest, to acquire a plurality of measures of values of parameters of the wind, the parameters of the wind comprising an amplitude and an orientation of the wind;

- a first computer programmed to compute, from the plurality of measures, boundary conditions, defined as values of the parameters of the wind at a boundary of a domain surrounding the geographical area of interest;

- a second computer to compute, using a first parametric function that depends on the boundary conditions only, a wind field, the wind field providing the values of the parameters of the wind in any point inside the domain; and,

- a target drone to be controlled based on the wind field as determined by the second computer.

8. System according to claim 7, wherein the first and second computers are onboard the target drone, the target drone receiving the measures from the plurality of measuring devices, either directly or indirectly via a ground station, or wherein the first computer is in a ground station and the second computer is onboard the target drone, the ground station receiving the measures from the plurality of measuring devices and transmitting the boundary conditions to the target drone.

9. System according to claim 7 or claim 8, wherein the plurality of measuring devices comprises at least one sentinel drone, the sentinel drone comprising a third computer programmed to measure the wind parameters from an instantaneous speed of the sentinel drone and an instantaneous power supplied to motors of the sentinel drone.

10. A computer program comprising software instructions which, when executed by the first computer, the second computer, and/or the third computer of the system according to claim 7, implement the method according to claim 1.