Claims

1. A barometric instrument comprising:

a base;

a plurality of pressure sensors distributed on the base, each pressure sensor representing a sensor position and configured for measuring a set of atmospheric pressure values at the respective sensor position;

a gimbal assembly coupled to the base for maintaining the pressure sensors horizontally; and

a processor communicatively linked to the pressure sensors, the processor configured for determining atmospheric pressure distribution on the sensor positions based on the measured sets of atmospheric pressure values, the atmospheric pressure distribution comprising a pressure gradient directed horizontally along the sensor positions,

wherein said determining of the atmospheric pressure distribution comprises generating at least one group of sets of atmospheric pressure values filtered from the measured sets of atmospheric pressure values; and

wherein the groups are consecutive and a first group has more sets of atmospheric pressure values than a second group consecutive to the first group.

2. The instrument according to claim 1, wherein for each group, each set of atmospheric pressure values thereof is generated based on a plurality of the measured sets of atmospheric pressure values.

3. The instrument according to claim 1 or 2, wherein each group has fewer sets of atmospheric pressure values than of the measured sets of atmospheric pressure values.

4. The instrument according to any one of claims 1 to 3, wherein each set of atmospheric pressure values of the first and second groups is generated based on first and second pluralities of the measured sets of atmospheric pressure values, respectively, and wherein the first plurality is fewer than the second plurality.

5. The instrument according to any one of claims 1 to 4, said determining of the atmospheric pressure distribution further comprising identifying a minimum and a maximum of the sets of atmospheric pressure values of each group for determining the pressure gradient.

6. The instrument according to claim 5, wherein the atmospheric pressure distribution is determined from the pressure gradient determined based on the minimum and maximum sets of atmospheric pressure values of one of the groups.

7. The instrument according to claim 5, said determining of the pressure gradient comprising determining an intermediary pressure gradient for each group based on the minimum and maximum sets of atmospheric pressure values of the respective group.

8. The instrument according to claim 7, wherein the atmospheric pressure distribution is determined from the pressure gradient aggregated from the intermediary pressure gradients.

9. The instrument according to any one of claims 1 to 8, wherein the pressure sensors are distributed in an array on the base.

10. The instrument according to any one of claims 1 to 9, further comprising an attachment mechanism coupled to the gimbal assembly for attaching the instrument to a body, wherein the instrument is alignable to the body such that the pressure gradient is determined relative to the body.

11. The instrument according to any one of claims 1 to 10, wherein the instrument is a handheld instrument and/or a wearable instrument.

12. A barometric method performed by a barometric instrument, the method comprising:

maintaining a plurality of pressure sensors horizontally on a base of the barometric instrument, the pressure sensors distributed on the base and each pressure sensor representing a sensor position;

measuring, by each pressure sensor, a set of atmospheric pressure values at the respective sensor position; and

determining, by a processor communicatively linked to the pressure sensors, atmospheric pressure distribution on the sensor positions based on the measured sets of atmospheric pressure values, the atmospheric pressure distribution comprising a pressure gradient directed horizontally along the sensor positions,

wherein said determining of the atmospheric pressure distribution comprises:

generating at least one group of sets of atmospheric pressure values filtered from the measured sets of atmospheric pressure values; and

identifying a minimum and a maximum of the sets of atmospheric pressure values of each group for determining the pressure gradient, said determining of the pressure gradient comprising determining an intermediary pressure gradient for each group based on the minimum and maximum sets of atmospheric pressure values of the respective group.

13. The method according to claim 12, wherein for each group, each set of atmospheric pressure values thereof is generated based on a plurality of the measured sets of atmospheric pressure values.

14. The method according to claim 12 or 13, wherein the atmospheric pressure distribution is determined from the pressure gradient aggregated from the intermediary pressure gradients.

15. The method according to any one of claims 12 to 14, further comprising repeating said measuring of the sets of atmospheric pressure values at predefined intervals.

16. A barometric instrument comprising:

a base;

a plurality of pressure sensors distributed on the base, each pressure sensor representing a sensor position and configured for measuring a set of atmospheric pressure values at the respective sensor position;

a gimbal assembly coupled to the base for maintaining the pressure sensors horizontally; and

a processor communicatively linked to the pressure sensors, the processor configured for determining atmospheric pressure distribution on the sensor positions based on the measured sets of atmospheric pressure values, the atmospheric pressure distribution comprising a pressure gradient directed horizontally along the sensor positions,

wherein said determining of the atmospheric pressure distribution comprises:

generating at least one group of sets of atmospheric pressure values filtered from the measured sets of atmospheric pressure values; and

identifying a minimum and a maximum of the sets of atmospheric pressure values of each group for determining the pressure gradient, said determining of the pressure gradient comprising determining an intermediary pressure gradient for each group based on the minimum and maximum sets of atmospheric pressure values of the respective group.

17. The instrument according to claim 16, wherein the atmospheric pressure distribution is determined from the pressure gradient aggregated from the intermediary pressure gradients.

18. The instrument according to claim 16 or 17, wherein for each group, each set of atmospheric pressure values thereof is generated based on a plurality of the measured sets of atmospheric pressure values.

19. The instrument according to any one of claims 16 to 18, wherein each group has fewer sets of atmospheric pressure values than of the measured sets of atmospheric pressure values.