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a display interface connected to said LIDAR system and said controller, said display interface is in communication with said visibility threshold controller, said display interface includes

- a visibility display connected to said LIDAR system, and
- a beam display connected to said beam controller.

7. The system according to claim 6, wherein said display interface includes an alarm system connected to said visibility threshold controller, said alarm system having at least one of a visual notification element and an audio notification element that is activated when a visibility is less than a minimum visibility set by said visibility threshold controller.

8. An airborne visibility indicator system for use in an aircraft comprising:

- a LIDAR system; and
- a flight crew interface connected to said LIDAR system, said flight crew interface including
  - a controller connected to said LIDAR system, said controller includes a visibility threshold controller, said visibility threshold controller includes
    - a GPS module,
    - a processor connected to said GPS module and said display interface, and
    - a database connected to said processor;
  - a display interface connected to said LIDAR system and said controller, said display interface is in communication with said visibility threshold controller; and
  - an alarm system connected to said processor and said LIDAR system.

9. An airborne visibility indicator system for use in an aircraft operated by a flight crew, the system comprising:

- beam control means for receiving selection of a direction and an elevation to take a visibility reading,
- visibility calculation means for calculating the visibility reading in the selected direction and at the selected elevation, and
- display means for displaying the calculated visibility reading, the direction of the visibility reading, and the elevation of the visibility reading.

10. The system according to claim 9, further comprising a minimum visibility threshold means for setting the minimum visibility range for a given flight plan and/or mission, and

an alarm means for notifying at least one member of the flight crew that the calculated visibility is less than or equal to the minimum visibility range.

11. The system according to claim 9, wherein said beam control means includes means for maintaining the selected direction during a maneuver by the aircraft.

12. A method for providing an airborne visibility indicator to a flight crew comprising:

- receiving a minimum visibility threshold through a flight crew interface,
- receiving a beam elevation and direction through the flight crew interface,
- measuring a visibility range with an aircraft mounted LIDAR system aimed based on the received elevation and direction,
- providing the visibility range to the flight crew on a display, and

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when the visibility range is less than or equal to the received minimum visibility threshold as determined by a computer, notifying at least one member of the flight crew of this occurrence.

13. A method for providing an airborne visibility indicator to a flight crew comprising:

- receiving a minimum visibility threshold through a flight crew interface,
- receiving a beam elevation and direction through the flight crew interface,
- measuring a visibility range with an aircraft mounted LIDAR system at the received elevation and direction,
- providing the visibility range to the flight crew, and
- when the visibility range is less than the received minimum visibility threshold, notifying at least one member of the flight crew of this occurrence.

14. The method according to claim 13, wherein said measuring step, said providing step, and said determination are repeated a plurality of times.

15. A method for providing an airborne visibility indicator to a flight crew comprising:

- receiving a minimum visibility threshold, wherein the minimum visibility threshold is received from a controller performing the following method
  - receiving a geographical location of the aircraft,
  - receiving an altitude for the aircraft,
  - correlating the geographical location and the altitude with the minimum visibility threshold in a database, and
  - providing the minimum visibility threshold; and
- measuring a visibility range with an aircraft mounted LIDAR system;
- providing the visibility range to the flight crew; and
- when the visibility range is less than or equal to the received minimum visibility threshold, notifying at least one member of the flight crew of this occurrence.

16. The method according to claim 13, further comprising: compensating for an aircraft turn towards the received direction such that the direction used to take the visibility range is adjusted such that the direction of the visibility range remains constant throughout the aircraft turn.

17. The method according to claim 13, wherein said receiving the beam elevation and direction step occurs when a new beam elevation and/or direction is entered by the flight crew interrupts a repeating loop of said measuring step, said providing step, and said determination.

18. The method according to claim 17, further comprising: compensating for an aircraft turn towards the received direction such that the direction used to take the visibility range is adjusted such that the direction of the visibility range remains constant throughout the aircraft turn.

19. The system according to claim 9, further comprising a minimum visibility threshold means for setting the minimum visibility range for a given flight plan and/or mission, and

an alarm means for notifying at least one member of the flight crew that the calculated visibility is less than or equal to the minimum visibility range.

20. The system according to claim 6, wherein said beam controller includes a horizontal controller and an elevation controller.