WHAT IS CLAIMED IS:

~~1. A data storage system comprising:~~

~~a recirculating loop configured to store data in motion and comprising a first vessel and a second vessel positioned remote from the first vessel;~~

~~the first vessel comprising at least one selected from the group consisting of a signal generator and a signal transmitter configured to transmit the data to the second vessel;~~

~~the second vessel configured to return to the first vessel the data transmitted from the first vessel; and~~

~~the first vessel configured to return to the second vessel the data transmitted from the second vessel.~~

~~2. The system of claim 1, a data management system configured to manage the data in the data storage system,~~

~~wherein at least one of the first vessel and the second vessel is configured to retrieve a block of data of the data identified by the data management system as being responsive to a data retrieval request for the block of data received from outside the data storage system, the block of data being less than an entirety of the data.~~

~~3. The system of claim 1, wherein for each round trip of the signal through the recirculating loop the signal is kept in motion.~~

~~4. The system of claim 1, wherein at least one of the first vessel and the second vessel is a satellite.~~

~~5. The system of claim 1, wherein the at least one selected from the group consisting of the signal generator and the signal transmitter is configured to transmit to the second vessel a signal~~

carrying the data as a signal multiplexed by a propagation-direction multiplexer, and the transmitting comprises transmitting a first portion of the signal through the recirculating loop as a first beam and transmitting a second portion of the signal through the recirculating loop as a second beam with a propagation path physically separated from the first beam.

6. The system of claim 1, wherein at least one of the first vessel and the second vessel comprises one selected from the group consisting of a ship, an aircraft, a submarine, and an oil rig, buoy or other stationary sea structure.

7. The system of claim 1, wherein the recirculating loop comprises a third vessel configured to transmit the data to the first vessel, and the second vessel is configured to return the data to the first vessel via the third vessel by transmitting the data to the third vessel.

8. The system of claim 1, wherein at least one of the first vessel and the second vessel comprises a reflecting surface positioned and configured to return the signal, respectively, to the second vessel or the first vessel.

9. The system of claim 1, wherein the at least one of the signal generator and the signal transmitter generates a laser signal carrying the data and transmitted to the second vessel.

10. The system of claim 1, wherein the at least one of the signal generator and the signal transmitter generates an optical beam signal carrying the data and transmitted to the second vessel

11. The system of claim 1, wherein at least one of the signal generator and the signal transmitter is configured to generate a multiplexed electromagnetic signal carrying the data and comprising a first set of multiplexed signals, each signal of the first set of multiplexed

electromagnetic signals comprising a second set of multiplexed electromagnetic signals generated using a multiplexing scheme different from the first set of multiplexed signals.

12. The system of claim 1, further comprising:

a controller configured to receive, at a first time, a first request from outside the data storage system to perform a first operation, the first operation comprising one of a read operation, a write operation, and a delete operation for a first block of data of the data, and to receive, at a second time after the first time, a second request from outside the data storage system to perform a second operation, the second operation comprising one of the read operation, the write operation, and the delete operation for a second block of data of the data,

wherein the system performs the first operation after performing the second operation.

13. The system of claim 1, wherein the at least one of the signal generator and the signal transmitter is configured to generate a code division multiplexed signal carrying the data, the code division multiplexed signal comprising a first set of multiplexed signals such that a first multiplexed signal of the first set carries data other than a second multiplexed signal of the first set.

14. The system of claim 1, wherein the at least one of the signal generator and the signal transmitter is configured to generate an orbital angular momentum division multiplexed signal carrying the data, the orbital angular momentum division multiplexed signal comprising a first set of multiplexed signals such that a first multiplexed signal of the first set carries data other than a second multiplexed signal of the first set.

15. The system of claim 1, wherein the at least one of the signal generator and the signal transmitter is configured to generate a space division multiplexed signal carrying the data, the space division multiplexed signal comprising a first set of multiplexed signals such that a first

multiplexed signal of the first set carries data other than a second multiplexed signal of the first set.

16. The system of claim 1, wherein the at least one of the signal generator and the signal transmitter is configured to generate a polarization division multiplexed signal carrying the data, the polarization division multiplexed signal comprising a first set of multiplexed signals such that a first multiplexed signal of the first set carries data other than a second multiplexed signal of the first set.

17. The system of claim 1, wherein the at least one of the signal generator and the signal transmitter is configured to generate a wavelength division multiplexed signal carrying the data, the wavelength division multiplexed signal comprising a first set of multiplexed signals such that a first multiplexed signal of the first set carries data other than a second multiplexed signal of the first set.

18. The system of claim 1, further comprising:

a data management system configured to associate a data block carried by a portion of signal with at least one of a physical property and a location of the portion of the signal; and

a controller configured to generate a control signal controlling an operation on the data block, the control signal generated based on a clock signal with reference to the at least one of the physical property and the location of the portion of the signal.

19. The system of claim 1, further comprising:

a data management system configured to manage data in the data storage system and configured to receive a request from outside the data storage system to at least one of delete, write and update a block of data in the data.

wherein the recirculating loop comprises an eraser configured to erase, based on information received from the data management system, a first portion of the signal carrying the

~~data, the first portion carrying the data block, the data block being less than an entirely of the data.~~

~~20. A data storage system method comprising:~~

~~transmitting, by at least one selected from the group consisting of a signal generator and a signal transmitter positioned at a first vessel, data carried by a signal to a second vessel,~~

~~wherein the second vessel is positioned remote from the first vessel, and a recirculating loop configured to store the data in motion comprises the first vessel and the second vessel,~~

~~returning, by the second vessel, to the first vessel the data transmitted from the first vessel; and~~

~~returning, by the first vessel, to the second vessel the data transmitted from the second vessel.~~

1. A data storage system comprising:

a data management system configured to manage digital data in the data storage system;

a terrestrial transmitter configured to transmit a radio frequency signal carrying the digital data to a communication satellite;

the communication satellite configured to transmit the data to a first laser satellite;

the first laser satellite comprising a laser signal generator configured to generate a laser signal carrying the digital data, and the laser signal generator configured to transmit the digital data to a second laser satellite;

the second laser satellite configured to return to the first laser satellite the digital data transmitted from the first satellite; and

the first laser satellite configured to return to the second laser satellite the digital data transmitted from the second laser satellite, such that the digital data is transmitted in a recirculating loop of storage in motion,

wherein at least one of the first laser satellite and the second laser satellite is configured to retrieve a block of data of the digital data identified by the data management system.

2. The system of claim 1, wherein the data management system identifies the block of data as being responsive to a request for the block of data received, the block of data being less than an entirety of the digital data.

3. The data storage system of claim 1, wherein the first laser satellite is operable to return to the second laser satellite the digital data transmitted from the second laser satellite by transmitting the digital data through one or more intermediary laser satellites.

4. The data storage system of claim 3, wherein the communication satellite is further operable to transmit a second radio frequency signal carrying the retrieved block of data of the digital data to the terrestrial transmitter.

5. A data storage system comprising:

a recirculating loop configured to store data in motion and comprising a first vessel and a second vessel positioned remote from the first vessel;

the first vessel comprising at least one selected from the group consisting of a signal generator and a signal transmitter configured to transmit the data to the second vessel;

the second vessel configured to return to the first vessel the data transmitted from the first vessel;

and the first vessel configured to return to the second vessel the data transmitted from the second vessel.

6. The system of claim 5, wherein for each round trip of the signal through the recirculating loop the signal is kept in motion.

7. The system of claim 5, wherein at least one of the first vessel and the second vessel is a satellite.

8. The system of claim 5, wherein at least one of the first vessel and the second vessel comprises one selected from the group consisting of a ship, an aircraft, a balloon, a submarine, and an oil rig, tower, buoy, or other stationary structure.

9. The system of claim 5, wherein the recirculating loop comprises a third vessel configured to transmit the data to the first vessel, and the second vessel is configured to return the data to the first vessel via the third vessel by transmitting the data to the third vessel.

10. The system of claim 5, wherein the recirculating loop is configured to recirculate the data between vessels recurring in consecutive sequence.

11. The system of claim 5, wherein at least one of the first vessel and the second vessel comprises a reflecting surface positioned and configured to return the signal, respectively, to the second vessel or the first vessel.

12. The system of claim 5, wherein the at least one of the signal generator and the signal transmitter generates a laser signal carrying the data and transmitted to the second vessel.

13. The system of claim 5, wherein the at least one of the signal generator and the signal transmitter generates an optical beam signal carrying the data and transmitted to the second vessel.

14. The system of claim 5, wherein the system further comprises an error checker configured to check to ensure data integrity.

15. A data storage system comprising:

a recirculating loop configured to store data in motion and comprising a first vessel and a second vessel positioned remote from the first vessel;

the first vessel comprising at least one selected from the group consisting of a signal generator and a signal transmitter configured to transmit the data to the second vessel;

the second vessel configured to return to the first vessel the data transmitted from the first vessel;

the first vessel configured to return to the second vessel the data transmitted from the second vessel; and

a data management system configured to manage the data in the data storage system,

wherein at least one of the first vessel and the second vessel is configured to retrieve a block of data of the data identified by the data management system as being responsive to a data retrieval request for the block of data received from outside the data storage system, the block of data being less than an entirety of the data.

16. A data storage system comprising:

a recirculating loop configured to store data in motion and comprising a first vessel and a second vessel positioned remote from the first vessel;

the first vessel comprising at least one selected from the group consisting of a signal generator and a signal transmitter configured to transmit the data to the second vessel; the second vessel configured to return to the first vessel the data transmitted from the first vessel;

the first vessel configured to return to the second vessel the data transmitted from the second vessel; and

wherein the at least one selected from the group consisting of the signal generator and the signal transmitter is configured to transmit to the second vessel a signal carrying the data as a signal multiplexed by a propagation-direction multiplexer, and the transmitting comprises transmitting a first portion of the signal through the recirculating loop as a first beam and transmitting a second portion of the signal through the recirculating loop as a second beam with a propagation path physically separated from the first beam.

17. A data storage system comprising:

a recirculating loop configured to store data in motion and comprising a first vessel and a second vessel positioned remote from the first vessel;

the first vessel comprising at least one selected from the group consisting of a signal generator and a signal transmitter configured to transmit the data to the second vessel;

the second vessel configured to return to the first vessel the data transmitted from the first vessel;

the first vessel configured to return to the second vessel the data transmitted from the second vessel; and

wherein at least one of the signal generator and the signal transmitter is configured to generate a multiplexed electromagnetic signal carrying the data and comprising a first set of

multiplexed signals, each signal of the first set of multiplexed electromagnetic signals comprising a second set of multiplexed electromagnetic signals generated using a multiplexing scheme different from the first set of multiplexed signals.

18. A data storage system comprising:

a recirculating loop configured to store data in motion and comprising a first vessel and a second vessel positioned remote from the first vessel;

the first vessel comprising at least one selected from the group consisting of a signal generator and a signal transmitter configured to transmit the data to the second vessel;

the second vessel configured to return to the first vessel the data transmitted from the first vessel;

the first vessel configured to return to the second vessel the data transmitted from the second vessel; and

a controller configured to receive, at a first time, a first request from outside the data storage system to perform a first operation, the first operation comprising one of a read operation, a write operation, and a delete operation for a first block of data of the data, and to receive, at a second time after the first time, a second request from outside the data storage system to perform a second operation, the second operation comprising one of the read operation, the write operation, and the delete operation for a second block of data of the data,

wherein the system performs the first operation after performing the second operation.

19. A data storage system comprising:

a recirculating loop configured to store data in motion and comprising a first vessel and a second vessel positioned remote from the first vessel;

the first vessel comprising at least one selected from the group consisting of a signal generator and a signal transmitter configured to transmit the data to the second vessel;

the second vessel configured to return to the first vessel the data transmitted from the first vessel;

the first vessel configured to return to the second vessel the data transmitted from the second vessel; and

wherein the at least one of the signal generator and the signal transmitter is configured to generate a code division multiplexed signal carrying the data, the code division multiplexed signal comprising a first set of multiplexed signals such that a first multiplexed signal of the first set carries data other than a second multiplexed signal of the first set.

20. A data storage system comprising:

a recirculating loop configured to store data in motion and comprising a first vessel and a second vessel positioned remote from the first vessel;

the first vessel comprising at least one selected from the group consisting of a signal

generator and a signal transmitter configured to transmit the data to the second vessel;

the second vessel configured to return to the first vessel the data transmitted from the first vessel;

the first vessel configured to return to the second vessel the data transmitted from the second vessel; and

wherein the at least one of the signal generator and the signal transmitter is configured to generate an orbital angular momentum division multiplexed signal carrying the data, the orbital angular momentum division multiplexed signal comprising a first set of multiplexed signals such that a first multiplexed signal of the first set carries data other than a second multiplexed signal of the first set.

21. A data storage system comprising:

a recirculating loop configured to store data in motion and comprising a first vessel and a second vessel positioned remote from the first vessel;

the first vessel comprising at least one selected from the group consisting of a signal generator and a signal transmitter configured to transmit the data to the second vessel;

the second vessel configured to return to the first vessel the data transmitted from the first vessel;

the first vessel configured to return to the second vessel the data transmitted from the second vessel; and

wherein the at least one of the signal generator and the signal transmitter is configured to generate a space division multiplexed signal carrying the data, the space division multiplexed signal comprising a first set of multiplexed signals such that a first multiplexed signal of the first set carries data other than a second multiplexed signal of the first set.

22. A data storage system comprising:

a recirculating loop configured to store data in motion and comprising a first vessel and a second vessel positioned remote from the first vessel;

the first vessel comprising at least one selected from the group consisting of a signal generator and a signal transmitter configured to transmit the data to the second vessel;

the second vessel configured to return to the first vessel the data transmitted from the first vessel;

the first vessel configured to return to the second vessel the data transmitted from the second vessel; and

wherein the at least one of the signal generator and the signal transmitter is configured to generate a polarization division multiplexed signal carrying the data, the polarization division multiplexed signal comprising a first set of multiplexed signals such that a first multiplexed signal of the first set carries data other than a second multiplexed signal of the first set.

23. A data storage system comprising:

a recirculating loop configured to store data in motion and comprising a first vessel and a second vessel positioned remote from the first vessel;

the first vessel comprising at least one selected from the group consisting of a signal generator and a signal transmitter configured to transmit the data to the second vessel;

the second vessel configured to return to the first vessel the data transmitted from the first vessel;

the first vessel configured to return to the second vessel the data transmitted from the second vessel; and

wherein the at least one of the signal generator and the signal transmitter is configured to generate a wavelength division multiplexed signal carrying the data, the wavelength division multiplexed signal comprising a first set of multiplexed signals such that a first multiplexed signal of the first set carries data other than a second multiplexed signal of the first set.

24. A data storage system comprising:

a recirculating loop configured to store data in motion and comprising a first vessel and a second vessel positioned remote from the first vessel;

the first vessel comprising at least one selected from the group consisting of a signal generator and a signal transmitter configured to transmit the data to the second vessel;

the second vessel configured to return to the first vessel the data transmitted from the first vessel;

the first vessel configured to return to the second vessel the data transmitted from the second vessel;

a data management system configured to associate a data block carried by a portion of signal with at least one of a physical property and a location of the portion of the signal; and

a controller configured to generate a control signal controlling an operation on the data block, the control signal generated based on a clock signal with reference to the at least one of the physical property and the location of the portion of the signal.

25. A data storage system comprising:

a recirculating loop configured to store data in motion and comprising a first vessel and a second vessel positioned remote from the first vessel;

the first vessel comprising at least one selected from the group consisting of a signal generator and a signal transmitter configured to transmit the data to the second vessel; the second vessel configured to return to the first vessel the data transmitted from the first vessel;

the first vessel configured to return to the second vessel the data transmitted from the second vessel; and

a data management system configured to manage data in the data storage system and configured to receive a request from outside the data storage system to at least one of delete, write and update a block of data in the data,

wherein the recirculating loop comprises an eraser configured to erase, based on information received from the data management system, a first portion of the signal carrying the data, the first portion carrying the data block, the data block being less than an entirety of the data.

26. A data storage method comprising:

transmitting, by at least one selected from the group consisting of a signal generator and a signal transmitter positioned at a first vessel, data carried by a signal to a second vessel, wherein the second vessel is positioned remote from the first vessel, and a recirculating loop configured to store the data in motion comprises the first vessel and the second vessel;

returning, by the second vessel, to the first vessel the data transmitted from the first vessel;

returning, by the first vessel, to the second vessel the data transmitted from the second vessel;

managing the data in the data storage system by a data management system; and

retrieving, by at least one of the first vessel and the second vessel, a block of data of the data identified by the data management system as being responsive to a data retrieval request for the block of data received from outside the data storage system, the block of data being less than an entirety of the data.

27. A data storage system comprising:

a plurality of communications nodes operable to recirculate signals carrying data through a recirculating loop comprising the signal communications nodes, and

a data management system configured to manage the data in the data storage system;

wherein: at least one of the communications nodes comprises a signal receiver operable to receive the signals from another one of the communication nodes through a free space medium, at least one of the communications nodes comprises a signal transmitter operable to transmit the signals to another one of the communication nodes through the free space medium, and at least one of the communications nodes is configured to retrieve a block of data of the data identified by the data management system as being responsive to a data retrieval request for the block of data received from outside the data storage system, the block of data being less than an entirety of the data.

28. The data storage system of claim 27, wherein the signals comprise optical signals.

29. The data storage system of claim 27, wherein the signals comprise electromagnetic signals.

30. The data storage system of claim 27, wherein the free space medium comprises a planetary atmosphere, a vacuum, space, or water.