CLAIMS

1. A ship maneuvering supporting system that is used in assisting a subject ship including at least one thruster by at least one tugboat, the ship maneuvering supporting system comprising:

at least one display including a screen; and

a controller that obtains subject ship position and azimuth information about a position and an azimuth of the subject ship and tugboat position and azimuth information about a position and an azimuth of the at least one tugboat, and displays a subject ship profile line and at least one tugboat profile line on the screen, the subject ship profile line indicating the position and the azimuth of the subject ship, the at least one tugboat profile line indicating the position and the azimuth of the at least one tugboat, wherein

the controller calculates a target propulsion vector of the at least one thruster of the subject ship and a target propulsion vector of the at least one tugboat, and displays the target propulsion vector of the at least one thruster of the subject ship and the target propulsion vector of the at least one tugboat on the screen.

2. The ship maneuvering supporting system according to claim 1, wherein

the controller calculates a planned propulsion vector of the subject ship and a planned turning moment of the subject ship, the planned propulsion vector being on a straight line passing through a pivot point of the subject ship, the planned turning moment being a moment about the pivot point, and displays the planned propulsion vector and the planned turning moment on the screen, and

the target propulsion vector of the at least one thruster of the subject ship and the target propulsion vector of the at least one tugboat are results of resolving the planned propulsion vector and the planned turning moment.

3. The ship maneuvering supporting system according to claim 1 or 2, wherein

the controller calculates a predicted position and a predicted azimuth of the subject ship after an elapse of a predetermined time, and displays a subject ship predicted profile line indicating the predicted position and the predicted azimuth on the screen.

4. The ship maneuvering supporting system according to any one of claims 1 to 3, wherein

the controller includes a database containing subject ship information about specifications of the subject ship and tugboat information about specifications of the at least one tugboat, and calculates the target propulsion vector of the at least one thruster of the subject ship and the target propulsion vector of the at least one tugboat based on the following information:

environmental information including weather information and/or oceanographic phenomenon information;

the subject ship position and azimuth information;

the tugboat position and azimuth information;

subject ship thrust plan information about a planned propulsion vector of the subject ship and a planned turning moment of the subject ship, the planned propulsion vector being on a straight line passing through a pivot point of the subject ship, the planned turning moment being a moment about the pivot point;

ship maneuvering pattern information about a ship maneuvering pattern that includes a manner of using the at least one thruster of the subject ship and a manner of assisting the subject ship by the at least one tugboat; and

information contained in the database.

5. The ship maneuvering supporting system according to any one of claims 1 to 4, wherein

the at least one display includes a terminal display included in a terminal that is independent of the subject ship and the at least one tugboat.

6. The ship maneuvering supporting system according to any one of claims 1 to 5, wherein

the at least one display includes one of, or both, a subject ship display installed in the subject ship and at least one tugboat display installed in the at least one tugboat.

7. A ship maneuvering supporting system that is used in assisting a subject ship by tugboats, the ship maneuvering supporting system comprising:

at least one display including a screen; and

a controller that obtains subject ship position and azimuth information about a position and an azimuth of the subject ship and tugboat position and azimuth information about positions and azimuths of the respective tugboats, and displays a subject ship profile line and tugboat profile lines on the screen, the subject ship profile line indicating the position and the

azimuth of the subject ship, the tugboat profile lines indicating the positions and the azimuths of the respective tugboats, wherein

the controller calculates a planned propulsion vector of the subject ship and a planned turning moment of the subject ship, the planned propulsion vector being on a straight line passing through a pivot point of the subject ship, the planned turning moment being a moment about the pivot point, and displays the planned propulsion vector and the planned turning moment on the screen.

8. The ship maneuvering supporting system according to claim 7, wherein

the controller calculates a target propulsion vector of each of the tugboats, and displays the target propulsion vectors of the respective tugboats on the screen, and

the target propulsion vectors of the respective tugboats are results of resolving the planned propulsion vector and the planned turning moment of the subject ship.

9. The ship maneuvering supporting system according to claim 7 or 8, wherein

the controller calculates a predicted position and a predicted azimuth of the subject ship after an elapse of a predetermined time, and displays a subject ship predicted profile line indicating the predicted position and the predicted azimuth on the screen.

10. The ship maneuvering supporting system according to any one of claims 7 to 9, wherein

the controller includes a database containing subject ship information about specifications of the subject ship and tugboat information about specifications of the tugboats, and calculates target propulsion vectors of the respective tugboats based on the following information:

environmental information including weather information and/or oceanographic phenomenon information;

the subject ship position and azimuth information;

the tugboat position and azimuth information;

subject ship thrust plan information about the planned propulsion vector of the subject ship and the planned turning moment of the subject ship, the planned propulsion vector being on the straight line passing through the pivot point of the subject ship, the planned turning moment being a moment about the pivot point;

ship maneuvering pattern information about a ship maneuvering pattern that

includes a manner of assisting the subject ship by the tugboats; and

information contained in the database.

11. The ship maneuvering supporting system according to any one of claims 7 to 10, wherein

the at least one display includes a terminal display included in a terminal that is independent of the subject ship and the tugboats.

12. The ship maneuvering supporting system according to any one of claims 7 to 11, wherein

the at least one display includes tugboat displays installed in the respective tugboats.

13. The ship maneuvering supporting system according to claim 4 or 10, further comprising an inputter with which a user inputs the subject ship thrust plan information.