

CLAIMS:

1. A bandwidth prediction apparatus comprising:
an acquisition unit configured to acquire position information indicating a first position at which a bandwidth is to be predicted; and
5 a prediction unit configured to predict a bandwidth at the first position by using respective measured values of bandwidths measured in advance at a plurality of second positions,
wherein the prediction unit is configured to predict the bandwidth at the first position by a variogram representing a spatial correlation of the plurality of second positions, and a kriging
0 and wherein the prediction unit is further configured to minimize an error of a predicted value of the bandwidth at the first position by a spatial distribution of the plurality of second positions.
2. The bandwidth prediction apparatus according to claim 1, wherein the prediction unit is configured to predict the bandwidth at the first position by using a spatial variation to make a prediction.
- 5 3. The bandwidth prediction apparatus according to claim 1 or claim 2, wherein the prediction unit comprises an exclusion unit configured to exclude a singular value from the respective measured values of the bandwidths of the plurality of second positions.
4. The bandwidth prediction apparatus according to any one of claims 1 to 3, further comprising a storage unit configured to store the respective measured values of the bandwidths
10 of the plurality of second positions as a database, and an update unit configured to update the database by using the bandwidth predicted by the prediction unit.
5. The bandwidth prediction apparatus according to any one of claims 1 to 4, wherein
when a predicted error of the bandwidth at the first position is equal to or smaller than a predetermined threshold value, the prediction unit adopts a prediction result of predicting the
25 bandwidth at the first position.
6. The bandwidth prediction apparatus according to any one of claims 1 to 5, wherein
the acquisition unit comprises a position prediction unit configured to acquire a plurality of
position information of a moving object at a plurality of different times and to predict a position of
the moving object from the acquired position information of the moving object at the plurality of
30 different times, and the acquisition unit is configured to acquire a prediction result of the position prediction unit as the position information.

7. The bandwidth prediction apparatus according to any one of claims 1 to 6, further comprising a transmission unit configured to transmit predetermined information in correspondence to the bandwidth predicted by the prediction unit.
8. The bandwidth prediction apparatus according to any one of claims 1 to 7, wherein
5 the prediction unit is configured to predict an available bandwidth at the first position by using respective measured values of available bandwidths measured in advance at a plurality of second positions.
9. A bandwidth prediction system comprising:
the bandwidth prediction apparatus according to any one of claims 1 to 8; and
0 a client apparatus comprising a communication unit configured to transmit the position information and to receive a prediction result of the prediction unit, and a display unit configured to display the prediction result of the prediction unit received through the communication unit.
10. A bandwidth prediction program for enabling a computer to function as respective units configuring the bandwidth prediction apparatus according to any one of claims 1 to 8.
- 5 11. A bandwidth prediction method comprising the steps of:
acquiring position information indicating a first position at which a bandwidth is to be predicted; and
predicting a bandwidth at the first position by using respective measured values of
bandwidths measured in advance at a plurality of second positions,
10 wherein the predicting of the bandwidth at the first position uses a variogram representing a spatial correlation of the plurality of second positions, and a kriging and wherein the predicting of the bandwidth involves minimizing an error of a predicted value of the bandwidth at the first position by a spatial distribution of the plurality of second positions.
- 25 12. A recording medium storing a bandwidth prediction program for enabling a computer to function as respective units configuring the bandwidth prediction apparatus according to any one of claims 1 to 8.