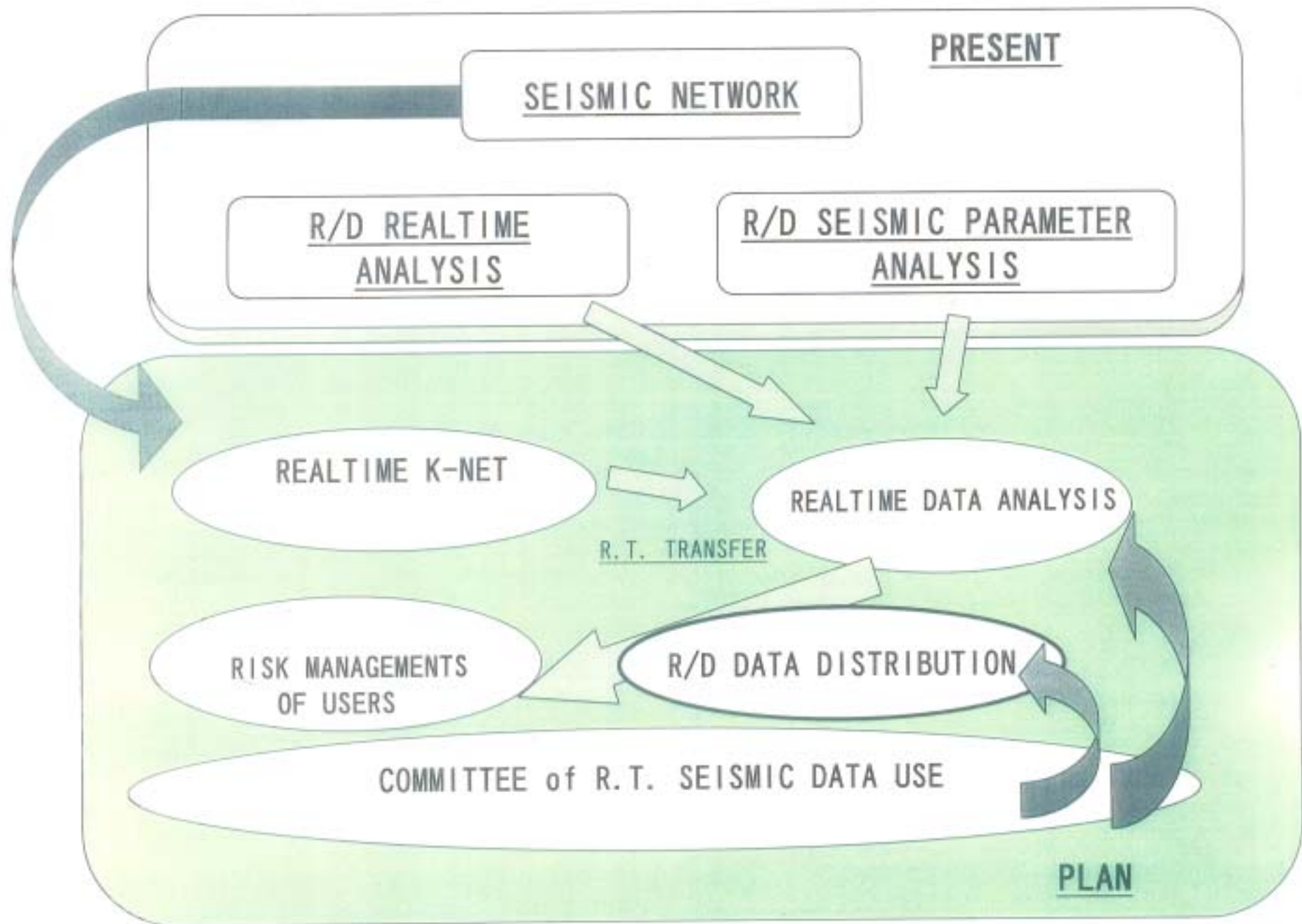
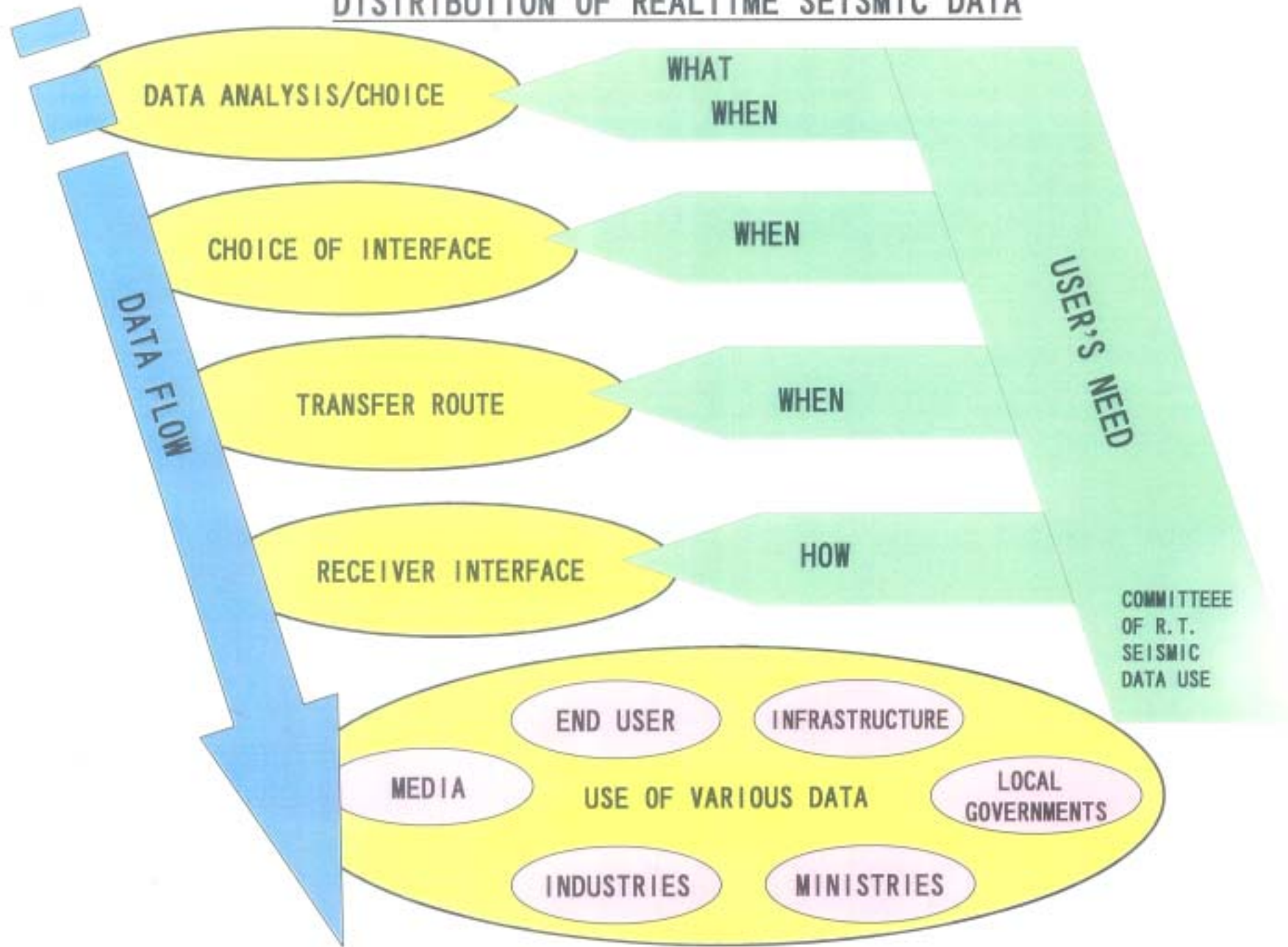


PROJECT OF NIED



## DISTRIBUTION OF REALTIME SEISMIC DATA



# REALTIME SEISMIC INFORMATION

| ITEMS                  | PRESENT                                                                                                     | 1 YEAR LATER                                                                                               | APPLICATION                                                                                                               | MAIN USERS                                                                  |
|------------------------|-------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| Focal Parameters Swarm | <ul style="list-style-type: none"> <li>▪ in 40 Seconds</li> <li>▪ High Quality</li> <li>▪ Manual</li> </ul> | <ul style="list-style-type: none"> <li>▪ 3 Seconds</li> <li>▪ High Quality</li> <li>▪ Automatic</li> </ul> | Primary Data<br><br><ul style="list-style-type: none"> <li>▪ Safeguard of Human Lives and Economical Resources</li> </ul> | Individuals, Local Governments, Media, Infrastructure, Precision Industries |
| Mechanism              | <ul style="list-style-type: none"> <li>▪ 3 Minutes</li> </ul>                                               | <ul style="list-style-type: none"> <li>▪ 10 Seconds</li> </ul>                                             | Basic Data for Various Information                                                                                        |                                                                             |
| Rupture Direction      |                                                                                                             | <ul style="list-style-type: none"> <li>▪ Real Time</li> </ul>                                              | Disaster Evaluation<br><br><ul style="list-style-type: none"> <li>▪ Application for Rescue</li> </ul>                     | Local Governments, Medical Facilities, Infrastructure                       |
| $\Delta$ CFF           |                                                                                                             | <ul style="list-style-type: none"> <li>▪ Real Time</li> </ul>                                              | Forecast of Aftershock<br><ul style="list-style-type: none"> <li>▪ Use for Evacuation and Relief</li> </ul>               | Local Governments, Infrastructure                                           |
| CMT Solution           | <ul style="list-style-type: none"> <li>▪ in 20 Minutes</li> </ul>                                           | <ul style="list-style-type: none"> <li>▪ in 3 Minutes</li> </ul>                                           | Precise Distribution of Strong Motion<br><ul style="list-style-type: none"> <li>▪ Analysis of Disaster</li> </ul>         | Local Governments                                                           |



# Hypocenter Determination

Horizontal Axis; Time

(0:trigger time 2002/9/16 10:10:52.94

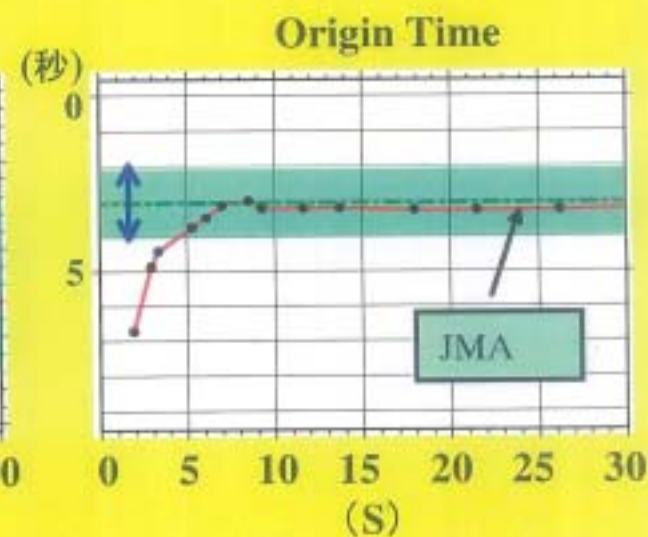
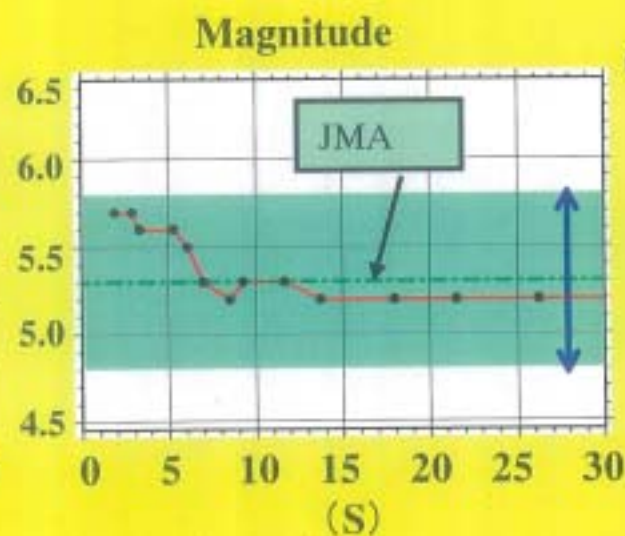
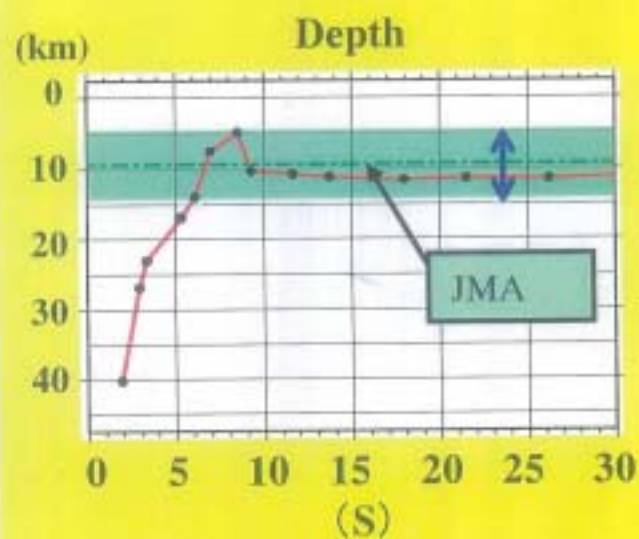
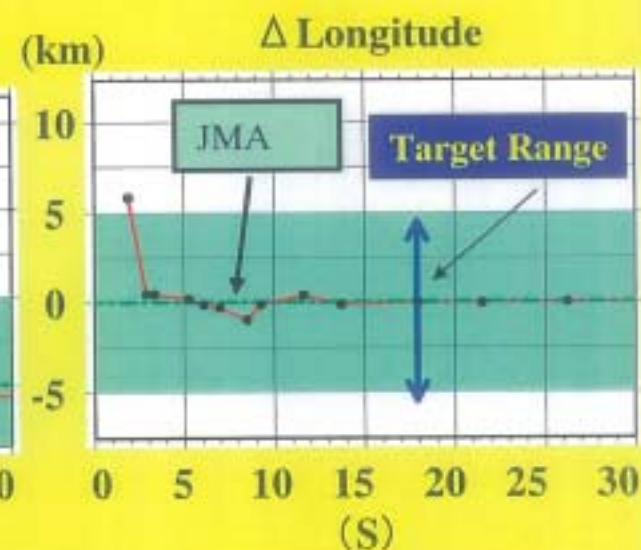
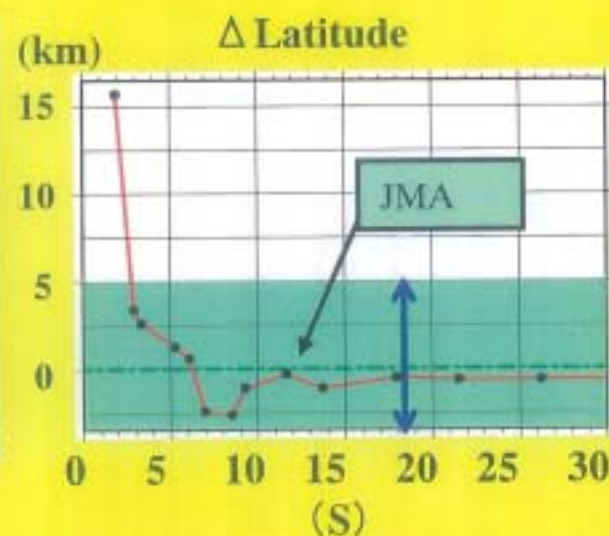


Figure 4

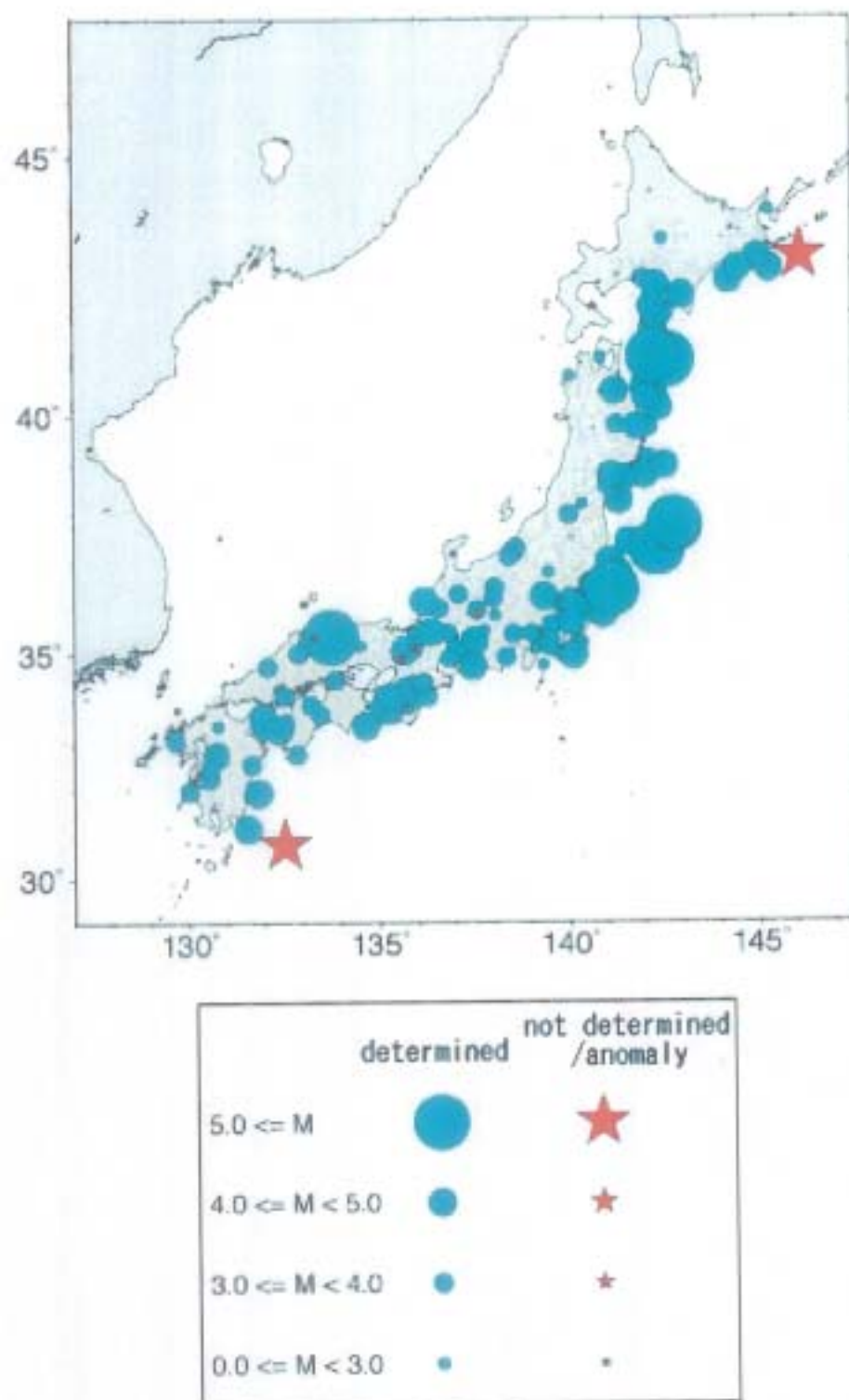


Fig. 5 Distribution of epicenters of earthquakes which are determined or not determined by our system. The not-determined group include the anomalous results of calculation. The period is from July 10 to October 20.

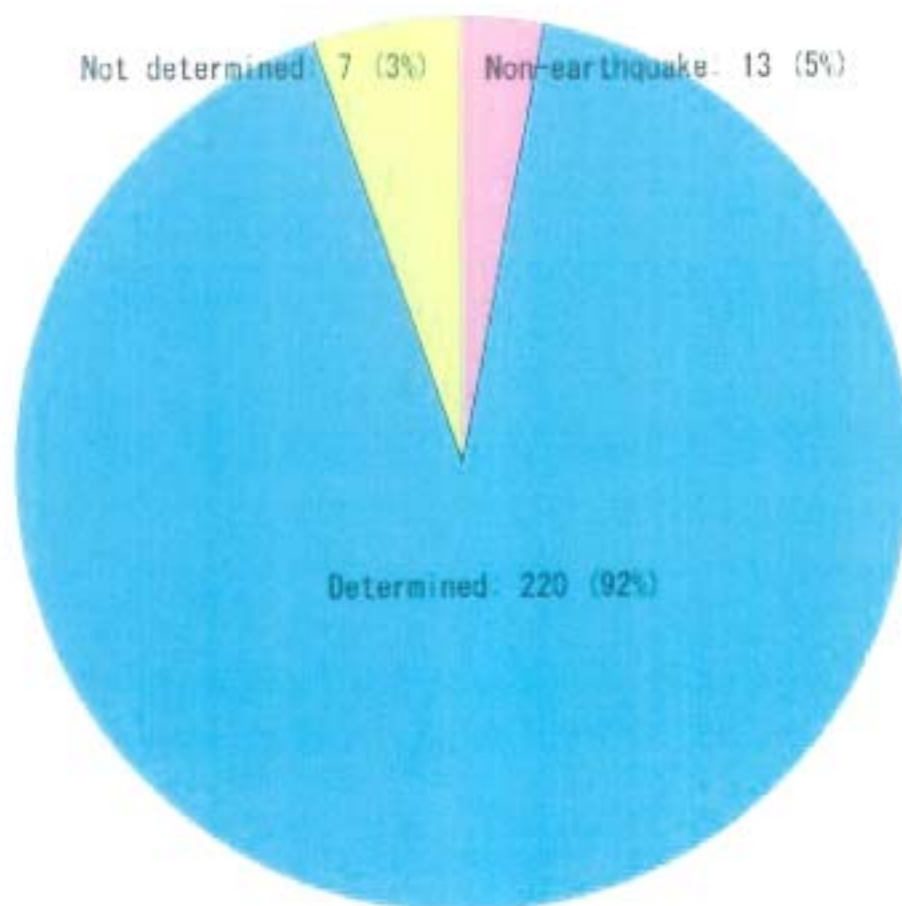


Fig. 6 Distribution of frequencies of earthquakes of which hypocenter is "determined (determined)", those of not determined (not-determined), and cases of false (non-earthquake)" in whole earthquakes (240 in total) satisfying the criterion for evaluation. The percentage is shown in the parentheses.

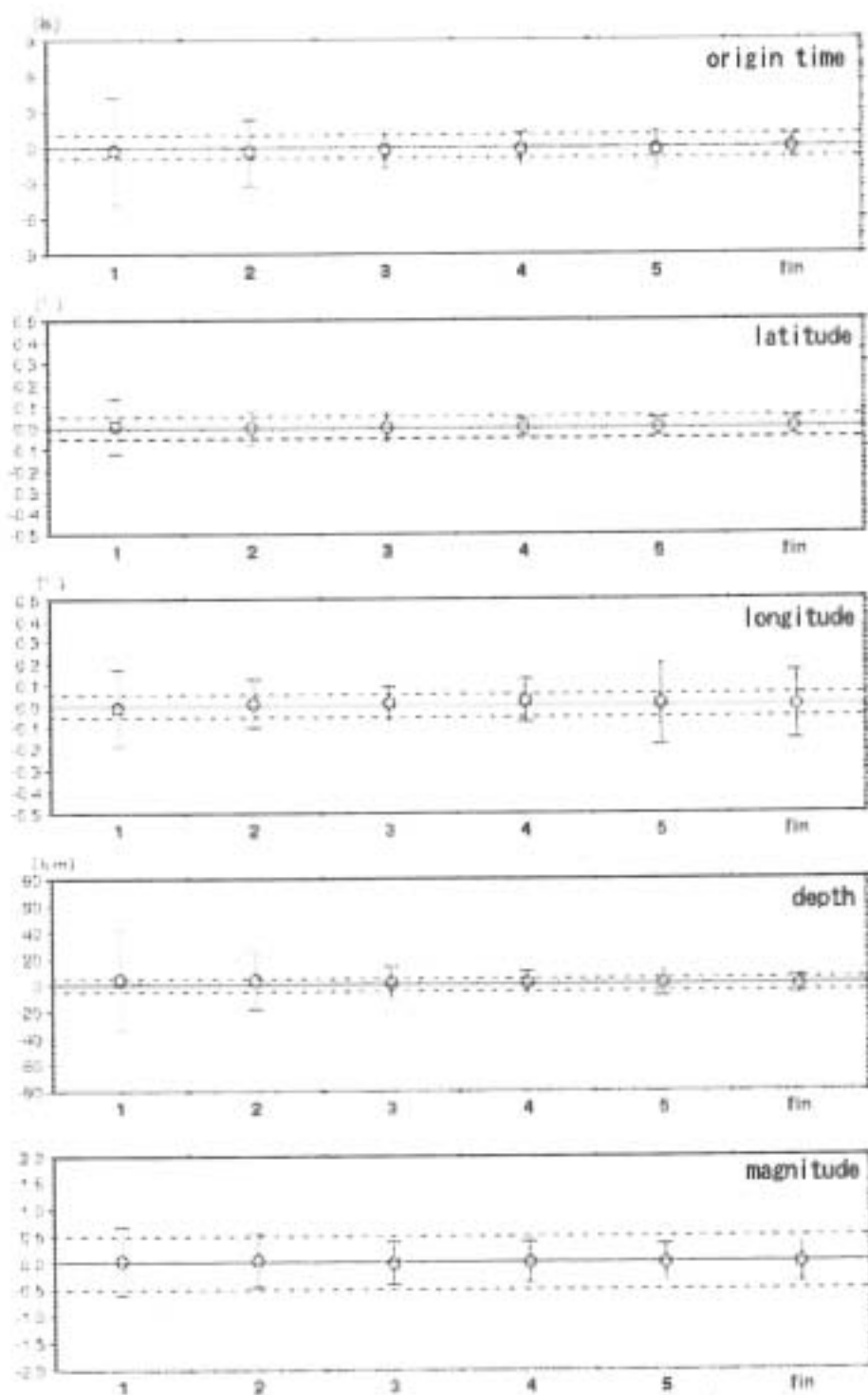


Fig. 7 Standard deviation and average of residuals between the parameters calculated and reported by JMA after a few days later and those by our system. X-axis corresponds to sequential number of successive calculation. "Fin" means the final result of calculation. The dotted lines show the temporary target range.

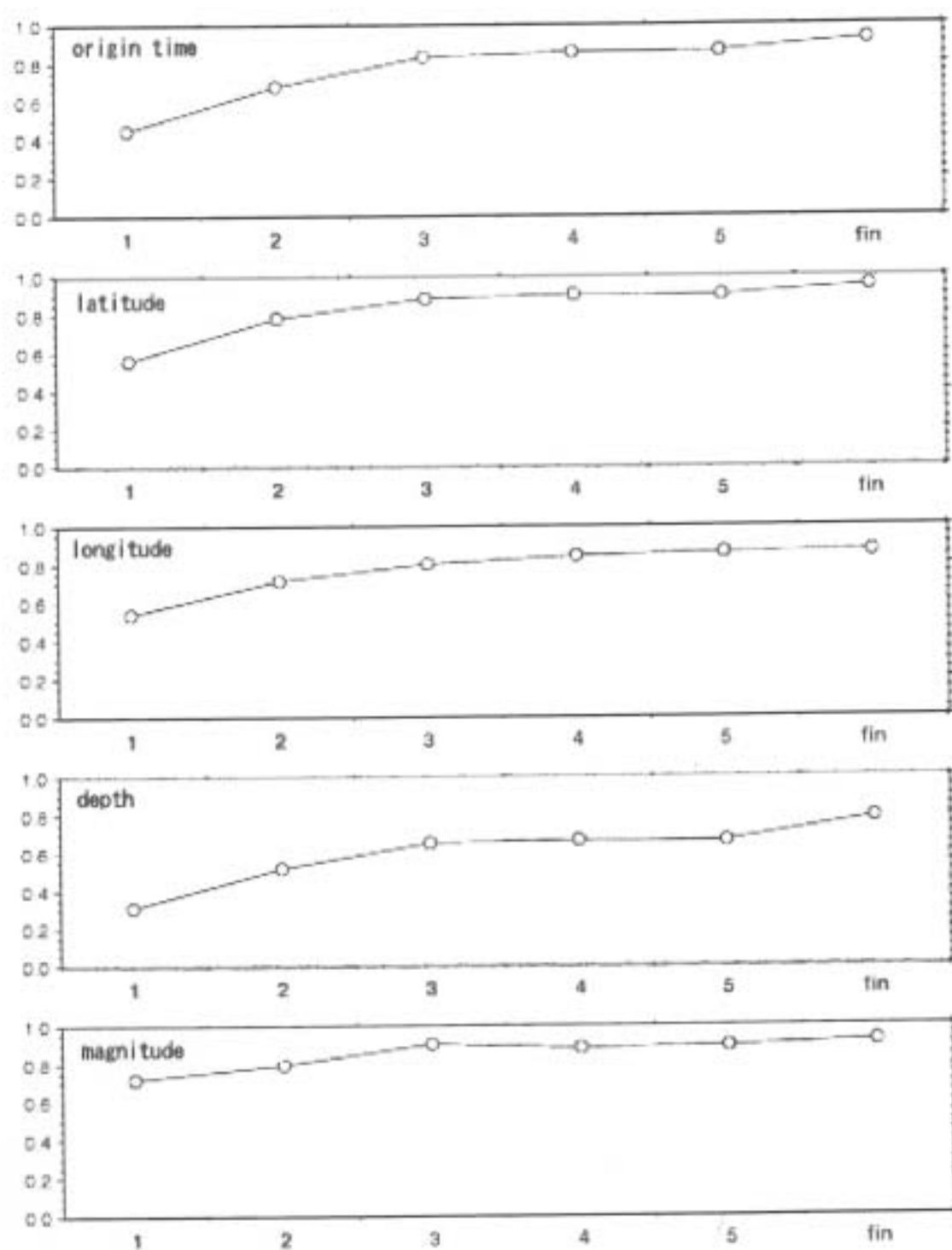


Fig. 8 Ratio of events satisfying the target range.



Number of times of calculation : 1

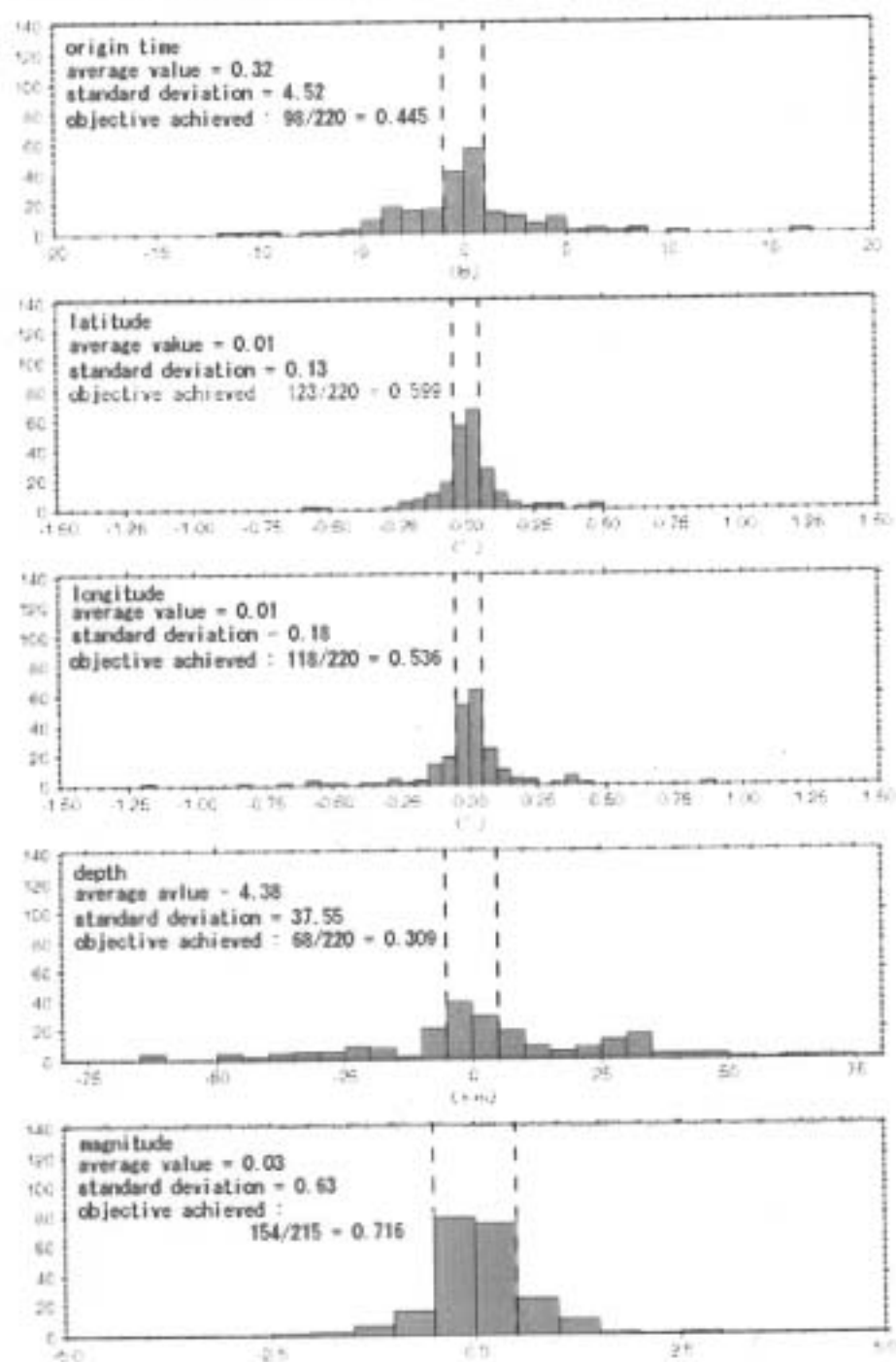


Fig. 9 Distribution of frequencies of residuals between hypocenter parameters calculated by JMA and those by our system in the first calculation. The dotted vertical lines denote the target range.

Number of times of calculation : 3

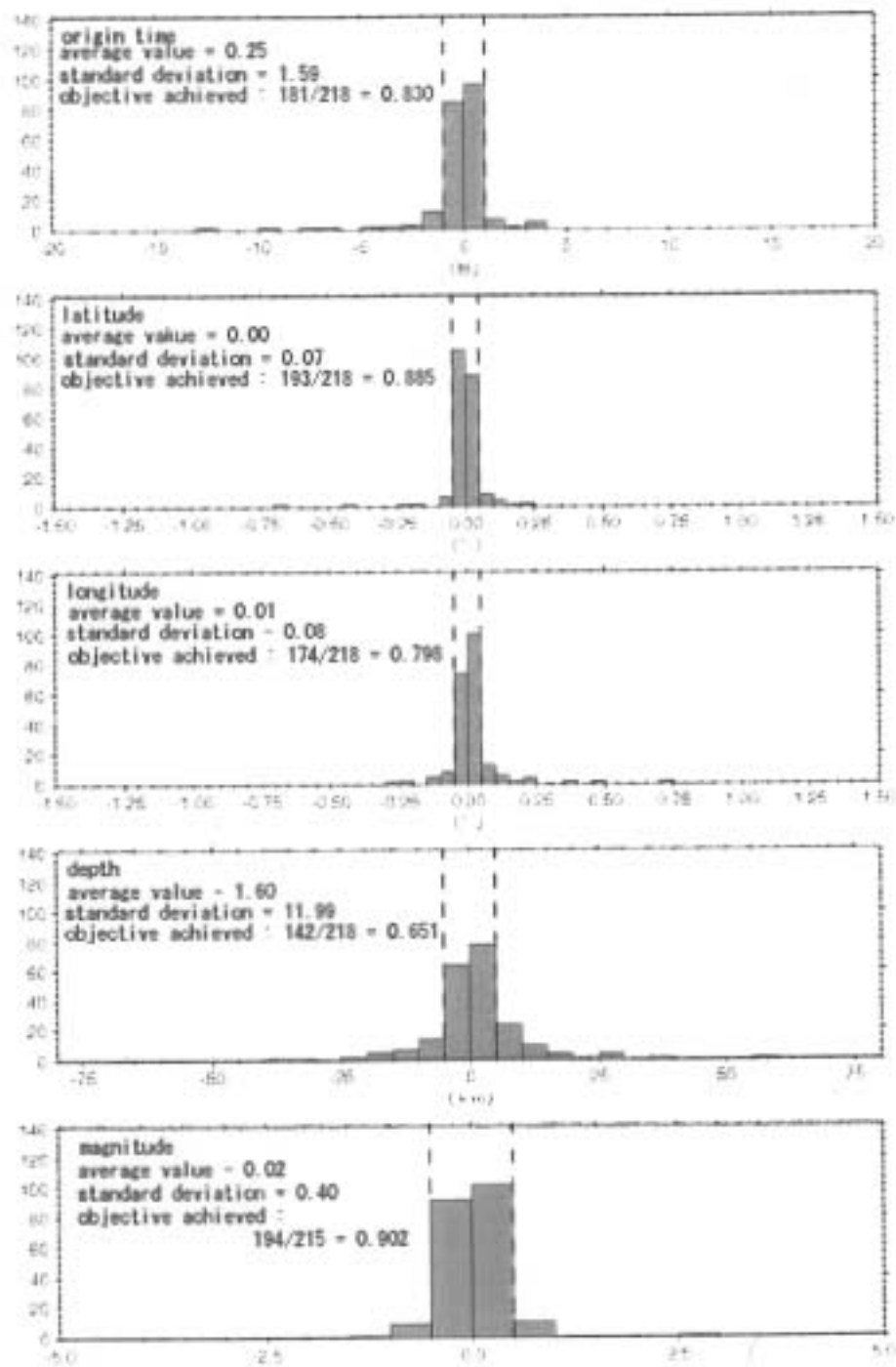


Fig. 10 Distribution of frequencies of residuals between information of hypocenter parameters calculated by JMA and those by our system in the third calculation.

Number of times of calculation : fin

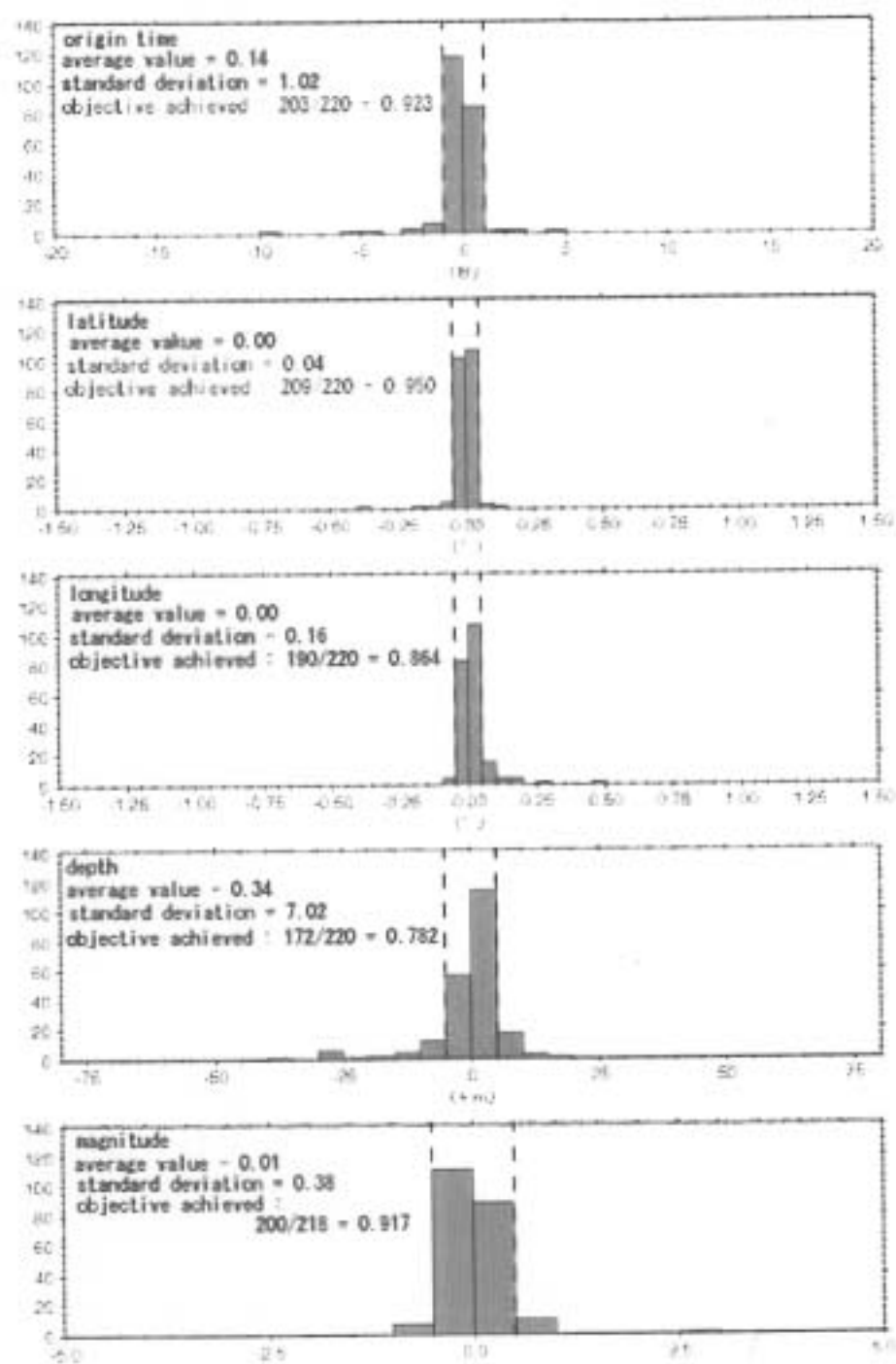
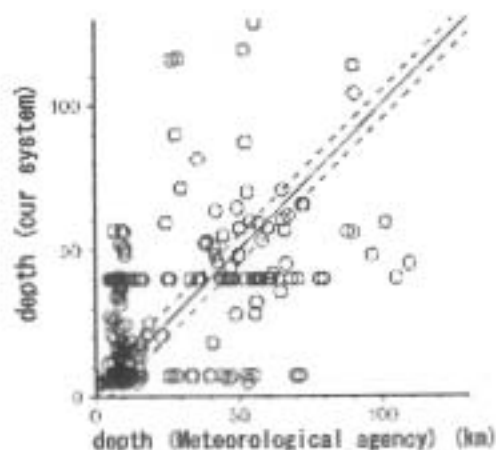
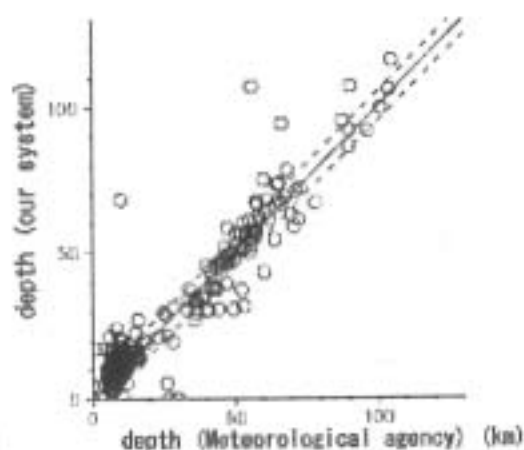


Fig. 11 Distribution of frequencies of residuals between information of hypocenter parameters calculated by JMA and those by our system in the final calculation.

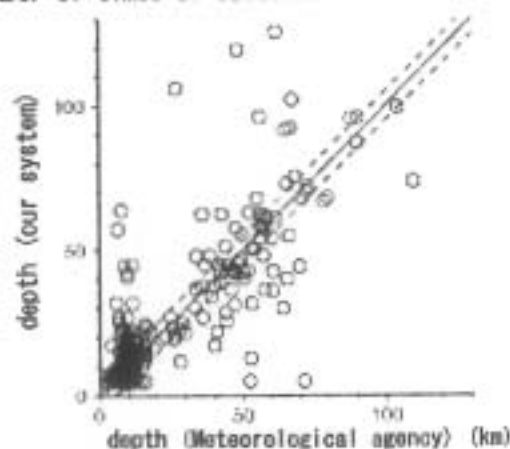
Number of times of calculation : 1



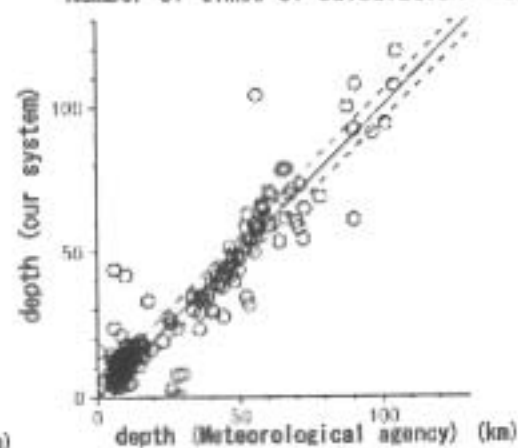
Number of times of calculation : 4



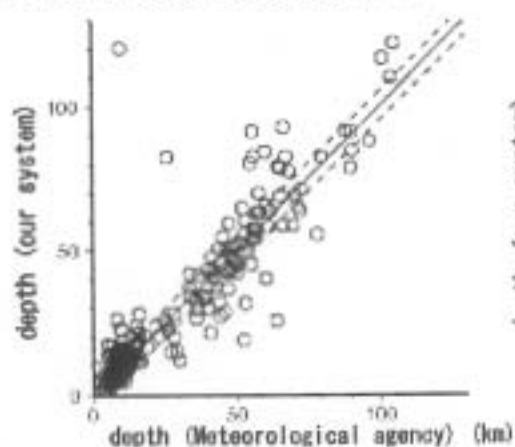
Number of times of calculation : 2



Number of times of calculation : 5



Number of times of calculation : 3



Number of times of calculation : final

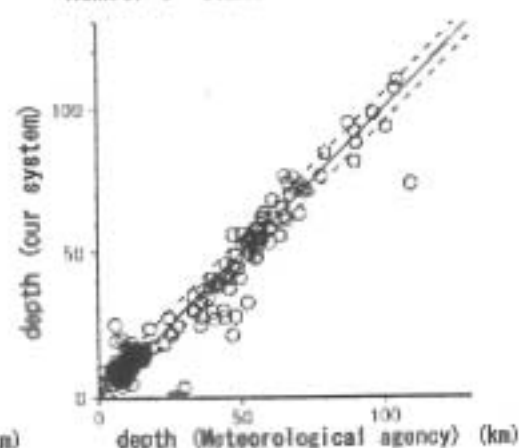
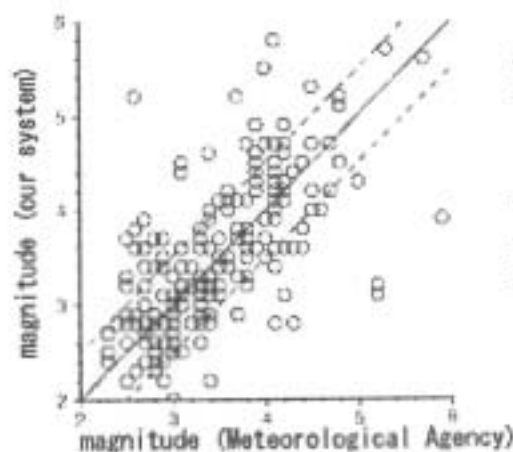
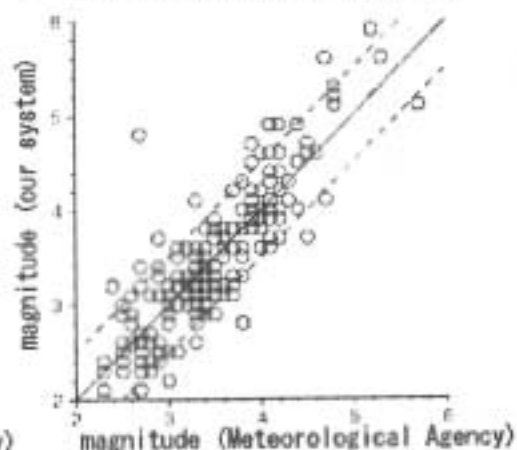


Fig. 12 The comparison between the depth calculated by JMA and those by our system for each step of calculation. The solid line means the coincidence of depths calculated by JMA and that by our system. The dotted lines represent the target range.

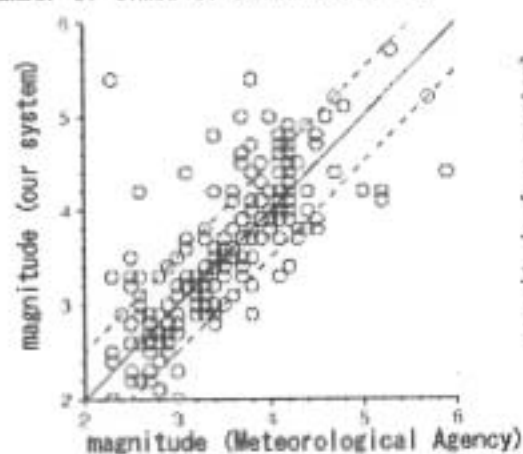
Number of times of calculation : 1



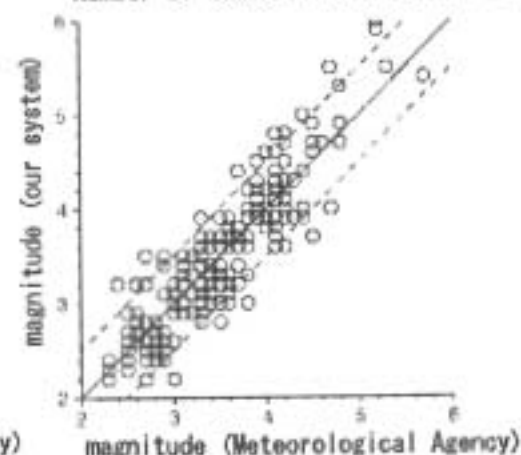
Number of times of calculation : 4



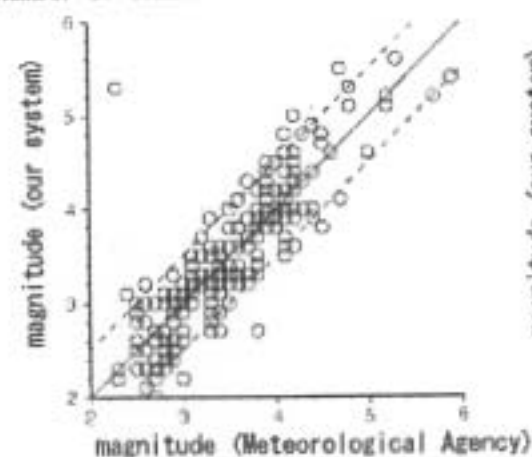
Number of times of calculation : 2



Number of times of calculation : 5



Number of times of calculation : 3



Number of times of calculation : final

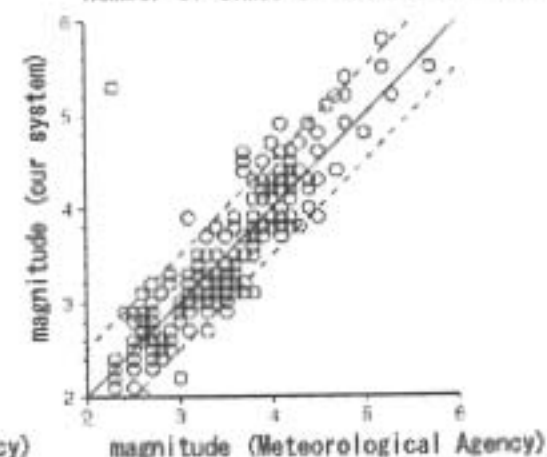


Fig. 13 The comparision between the magnitude calculated by JMA and that by our system for each step of calculation. The solid lines represent the coinsidence of depth calculated by JMA and that by our system. The dotted lines represent the "objective accuracy" in our system.