

## 第Ⅲ部 国内基礎実験のデータ処理とその補正

### Ⅲ. DATA PROCESSING AND ITS CORRECTIONS IN DOMESTIC BASIC VLBI EXPERIMENT

In part Ⅲ, there are descriptions on the data processing and its corrections in the domestic basic VLBI experiment made at the beginning of 1977. The part is divided into four chapters. They are, Ⅲ-1. reduction of VLBI data, Ⅲ-2. time synchronization, Ⅲ-3. total instrumental delay measurement, and Ⅲ-4. correction for an aliasing noise. The section Ⅲ-1., Ⅲ-2. and Ⅲ-3. are indispensable processes and corrections concerning the VLBI data reductions.

In Ⅲ-1., detailed process of the domestic basic VLBI data reduction are depicted, including determinations of positions of antenna sites and radio sources, observational time, delay time correction due to atmospheric refraction. The explanations refers how to reduce the VLBI elementary values of, delay time, phase differences and coherence. Fringe-stopping is also introduced.

In Ⅲ-2., procedure of time synchronizations by receiving TV signals from Tokyo tower at each antenna site, are described, in which synchronizings were carried out throughout the experiment. Direct phase comparisons of 5 MHz signals from the two Cs standards used, were also made at just before, and just after the experiment. These data are obtained for precise comparison of the time between Kashima and Yokosuka.

In Ⅲ-3., there are description how total instrumental delay measurements were made. The delay measurements consists of three parts: a) one, for feed system and wave guide part, which are rather difficult to measure, and so delay was obtained by the calculation; b) other immovable parts, parametric amplifiers and frequency down converters; c) movable parts, from I. F. converter through record signal generator to VTR.

In the last chapter Ⅲ-4., detailed analysis on correction for an aliasing noise are given. That correction was needed due to violation of Shannon's sampling theorem.