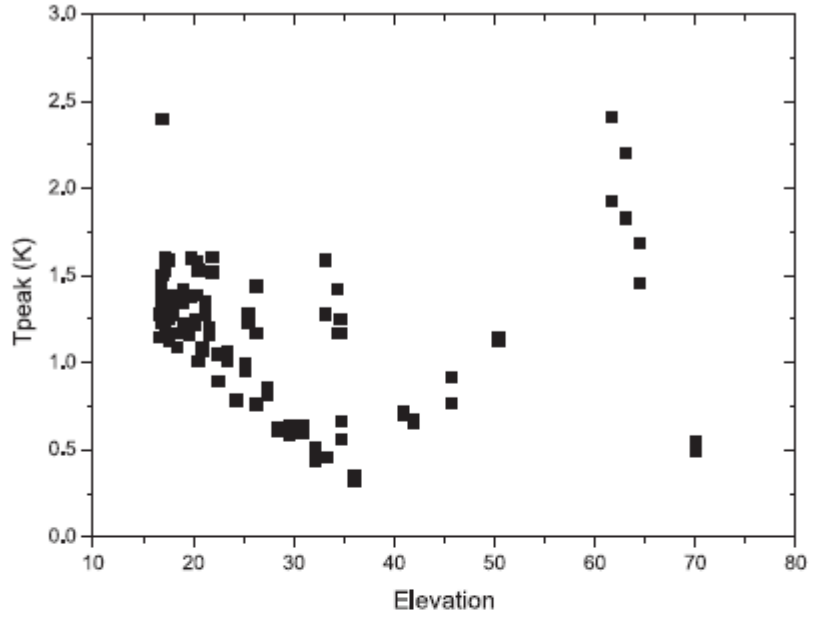
QTT沙龙

有关天线方位精度方面的一些思考

加尔肯·叶生别克

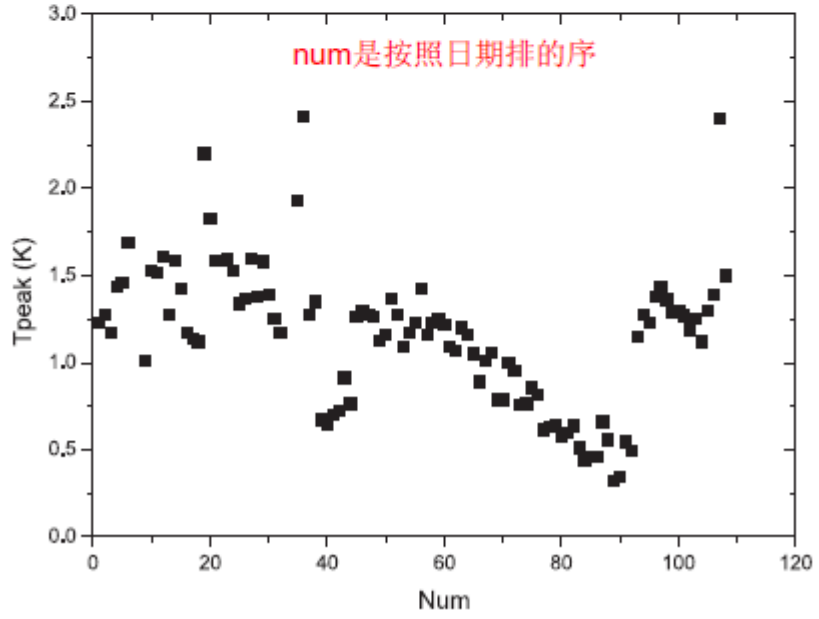
2013年10月10日

2013年1-2月份

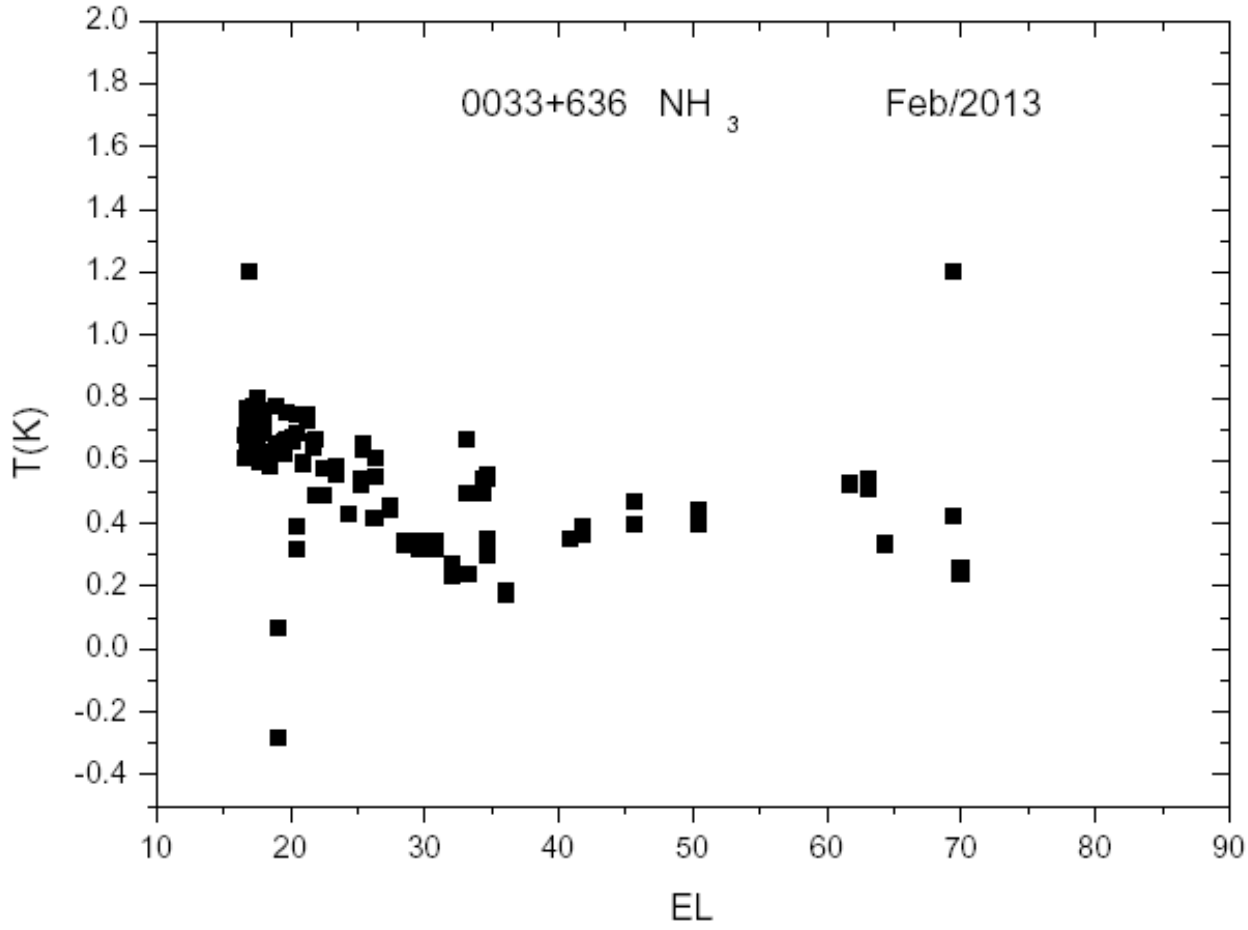


K-波段接收机测试

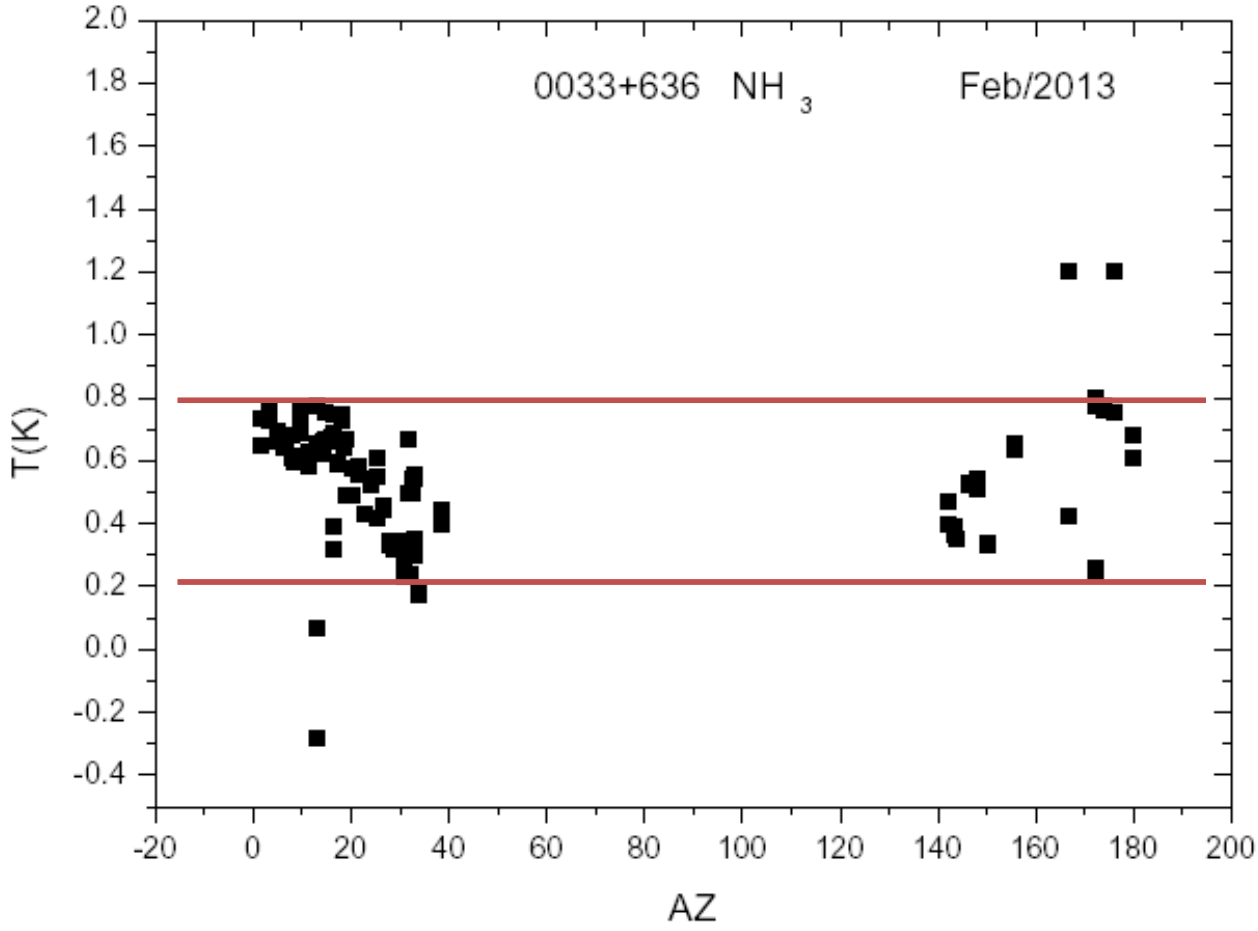
0033+636跟踪
观测氨分子强度变化



检验指向精度



氨分子强度与随俯仰变化分布



氨分子强度与随方位变化分布

乌鲁木齐 25m 天线轨道变形测量及指向校正

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Urumqi 25m Antenna Orbit Deformation Measurement and Pointing Calibration

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Abstract:

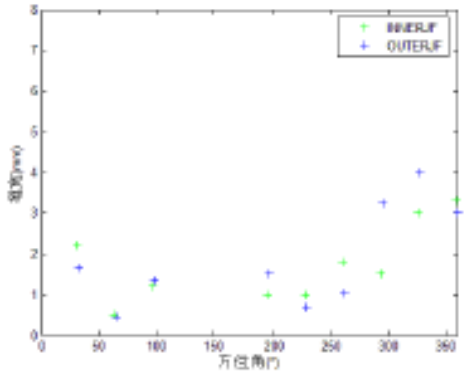
As for Nan Shan 25m antenna orbit deformation situations, this paper uses two methods to measure the deformation of the orbit, we use frame type level to measure the orbit deformation indirectly and digital level to measure the orbital elevation data directly. We analyze actual measurement data to explore the impact of orbit deformation on the antenna pointing, to establish a corresponding pointing error model, measurement data from the model of a least squares fitting situation, the model is accurate. Through the X-band radio sources observation, pointing accuracy improved m%.

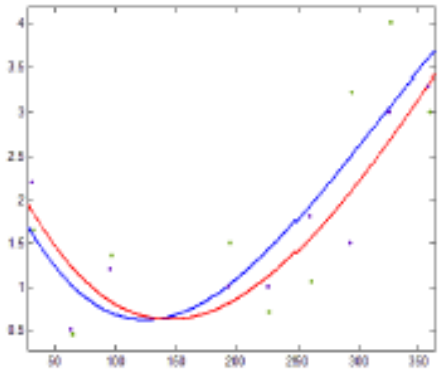
Keywords: deformation measurement; level; regression analysis; pointing accuracy

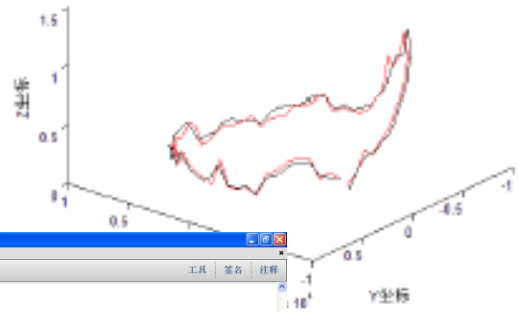
摘要：

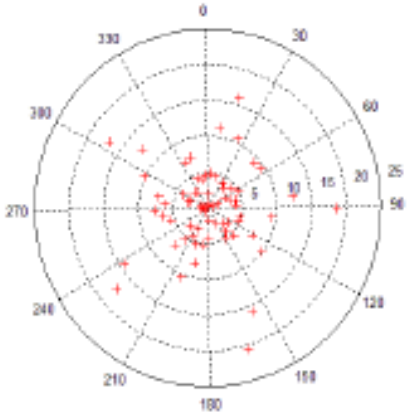
针对南山 25m 天线轨道变形状况，本文采用两种方法测量轨道的变形量，框式水平仪间接测量轨道变形量，数字水准仪直接测量轨道面高程数据。通过对实际测量数据分析轨道变形对天线指向的影响，建立了相应的指向偏差模型，从模型对测量数据的最小二乘拟合情况来看，模型比较准确。通过对 X 波段射电源观测，指向精度提高了 m%。

关键词： 变形测量；水准仪；拟合分析；指向精度









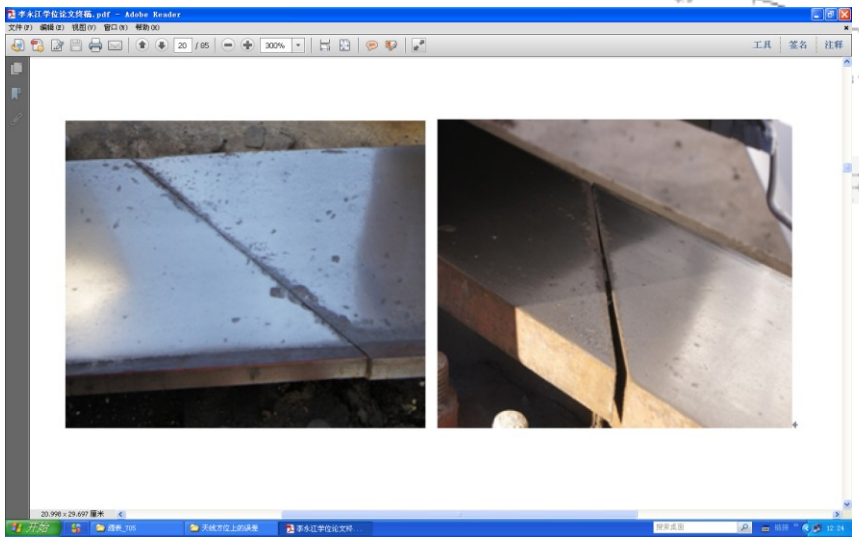
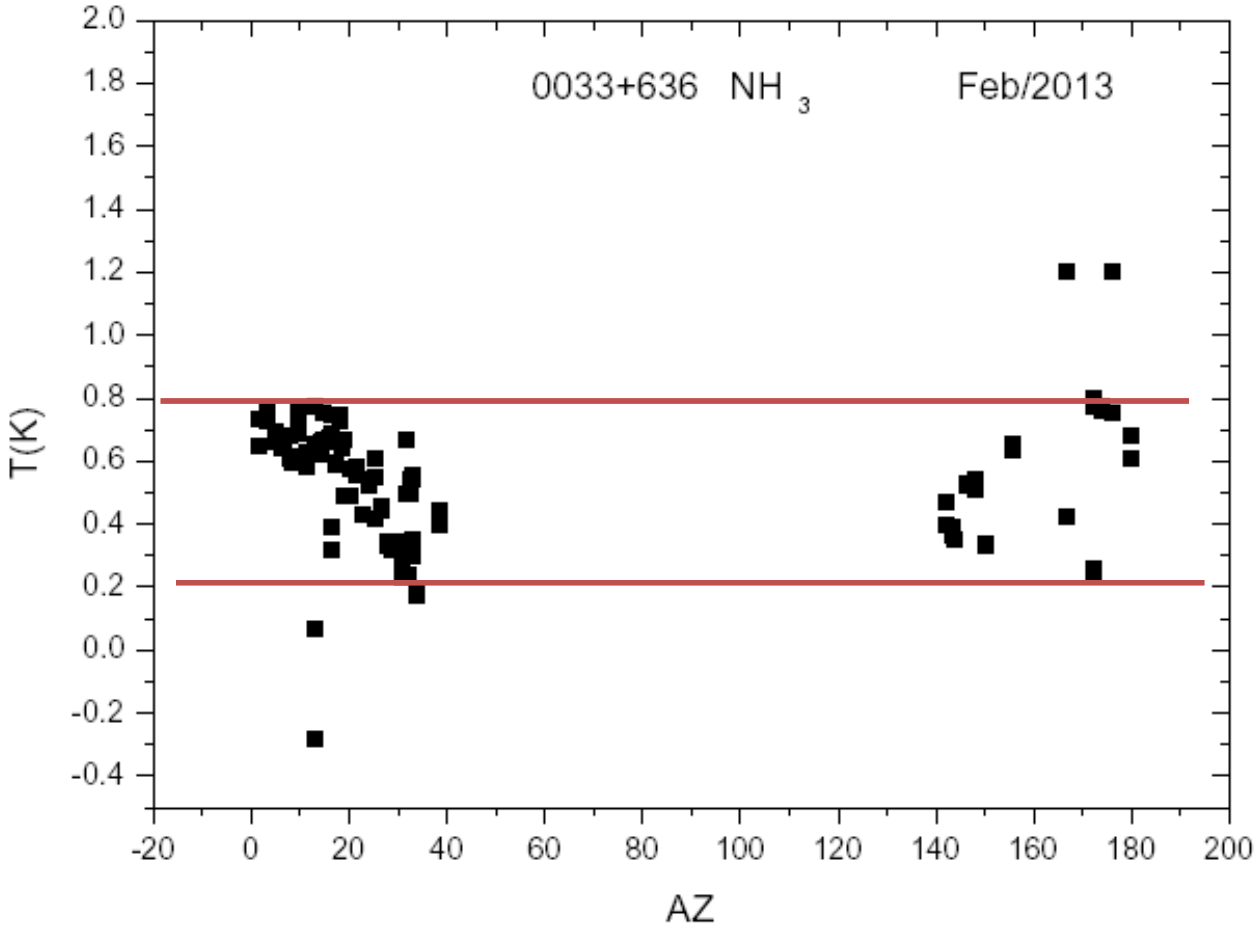


图 7　轨道缝宽、整体倾斜度

Fig.7 Seam width and overall tilt of orbit



俯仰的指向– 重力变形　　方位的指向-综合因素

通过氨分子谱线来测试 – 应纳入25米望远镜的验收指标之一

谢谢！