Supplementary information for the article "Time-stamp correction of magnetic observatory data acquired during unavailability of time-synchronization services"

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1 Introduction

The lag between the time series of magnetic components measurements recorded at the magnetic observatories of Lanzhou (LZH) and Kakioka (KAK) have been calculated. As described in the article, 15 minutes of data recorded at 1 Hz sampling frequency have been cross-correlated to compute the lag of the time-stamp of LZH data, after the GPS synchronization of the data logger was unavailable. The local time of the selected data has an impact on the reliability of the computed lag, the night-time being the best choice. This is due to the differences in the diurnal variation at LZH and KAK. Figures 1–24 show the day-to-day evolution of the computed lags at every UTC. Figure 25 show all the lags computed at every UTC.

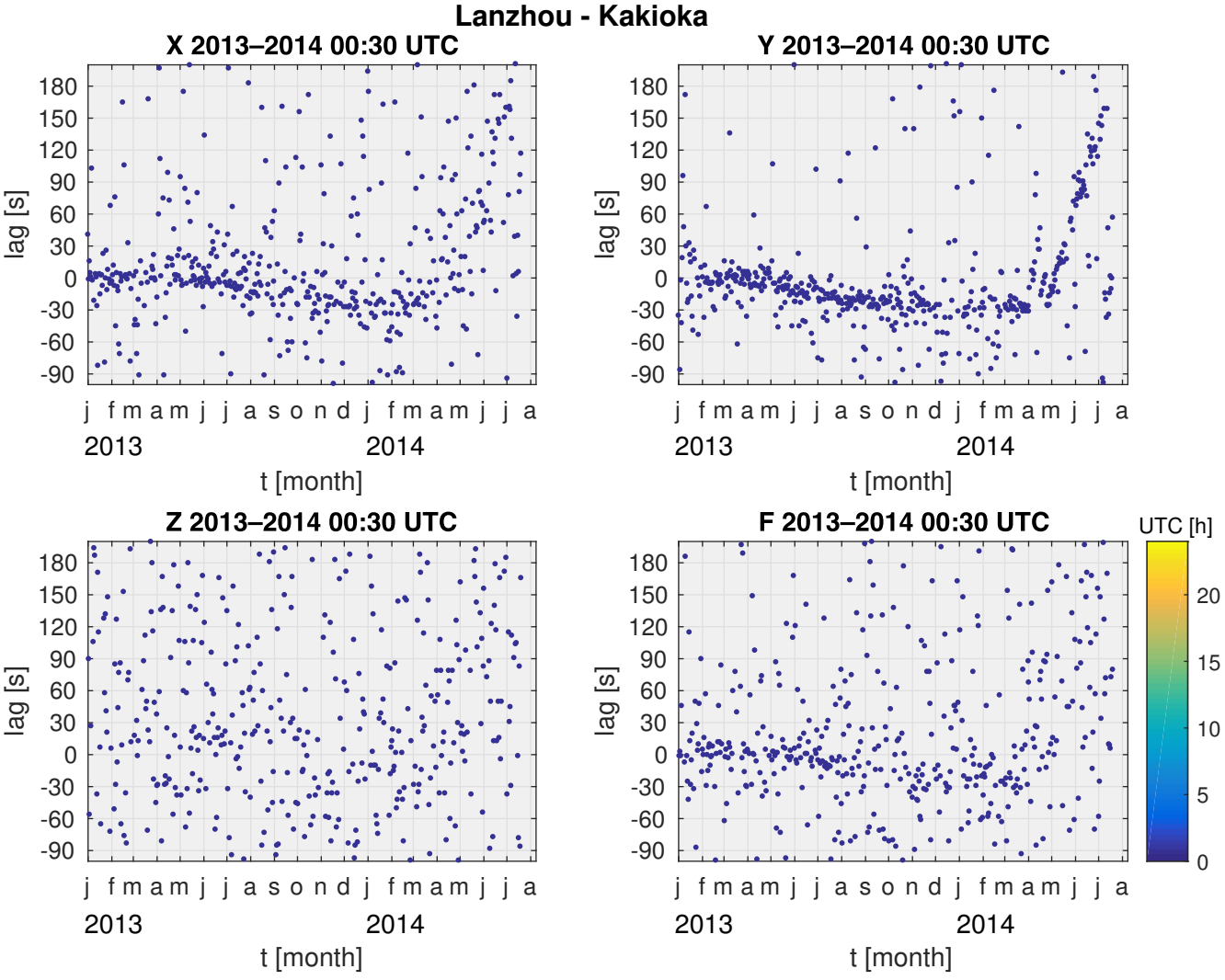

Figure 1. Time lags calculated every day during 15 minutes around 00:30 UTC comparing Lanzhou and Kakioka data for each component of the magnetic field X, Y, Z and F.

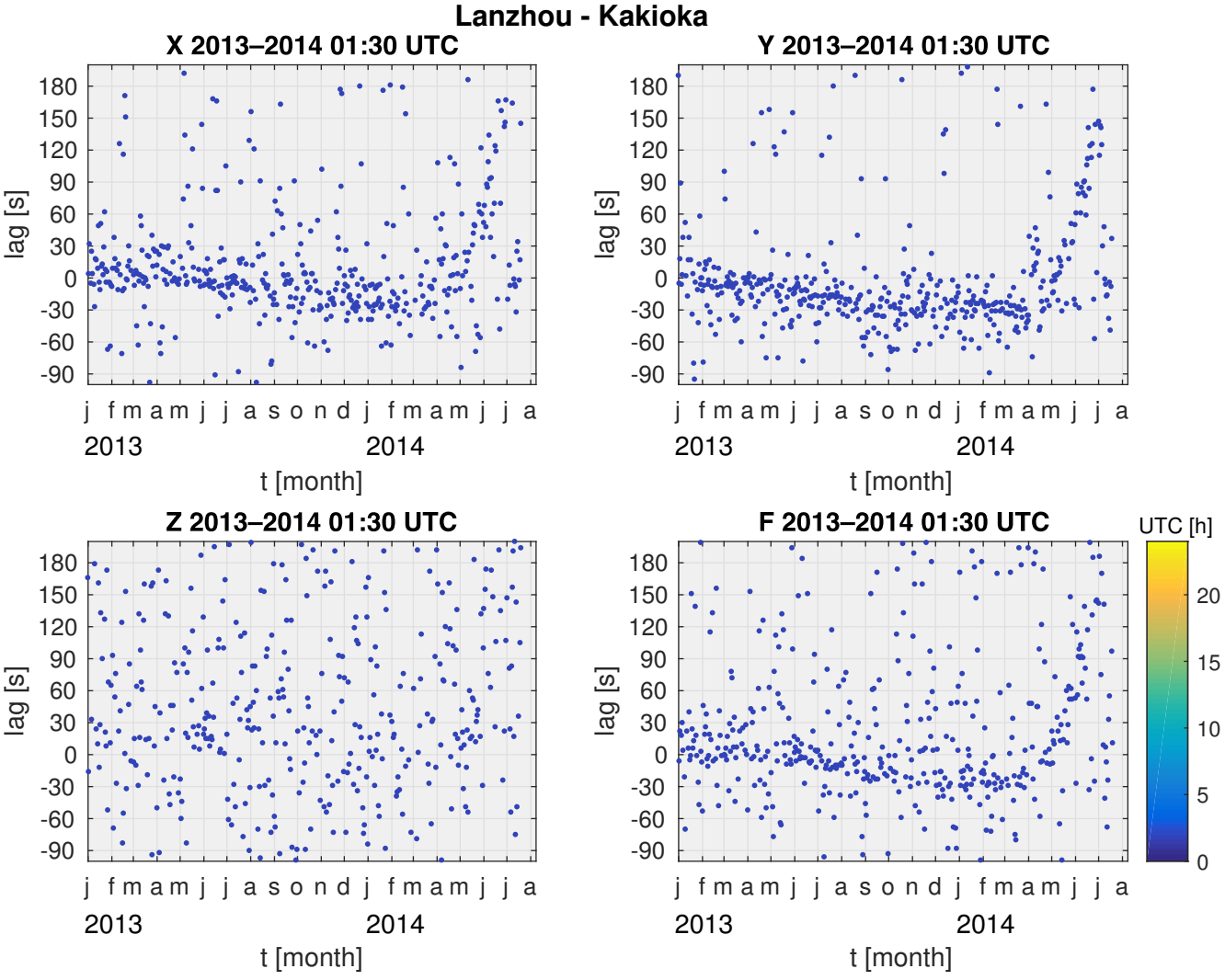

Figure 2. Time lags calculated every day during 15 minutes around 01:30 UTC comparing Lanzhou and Kakioka data for each component of the magnetic field X, Y, Z and F.

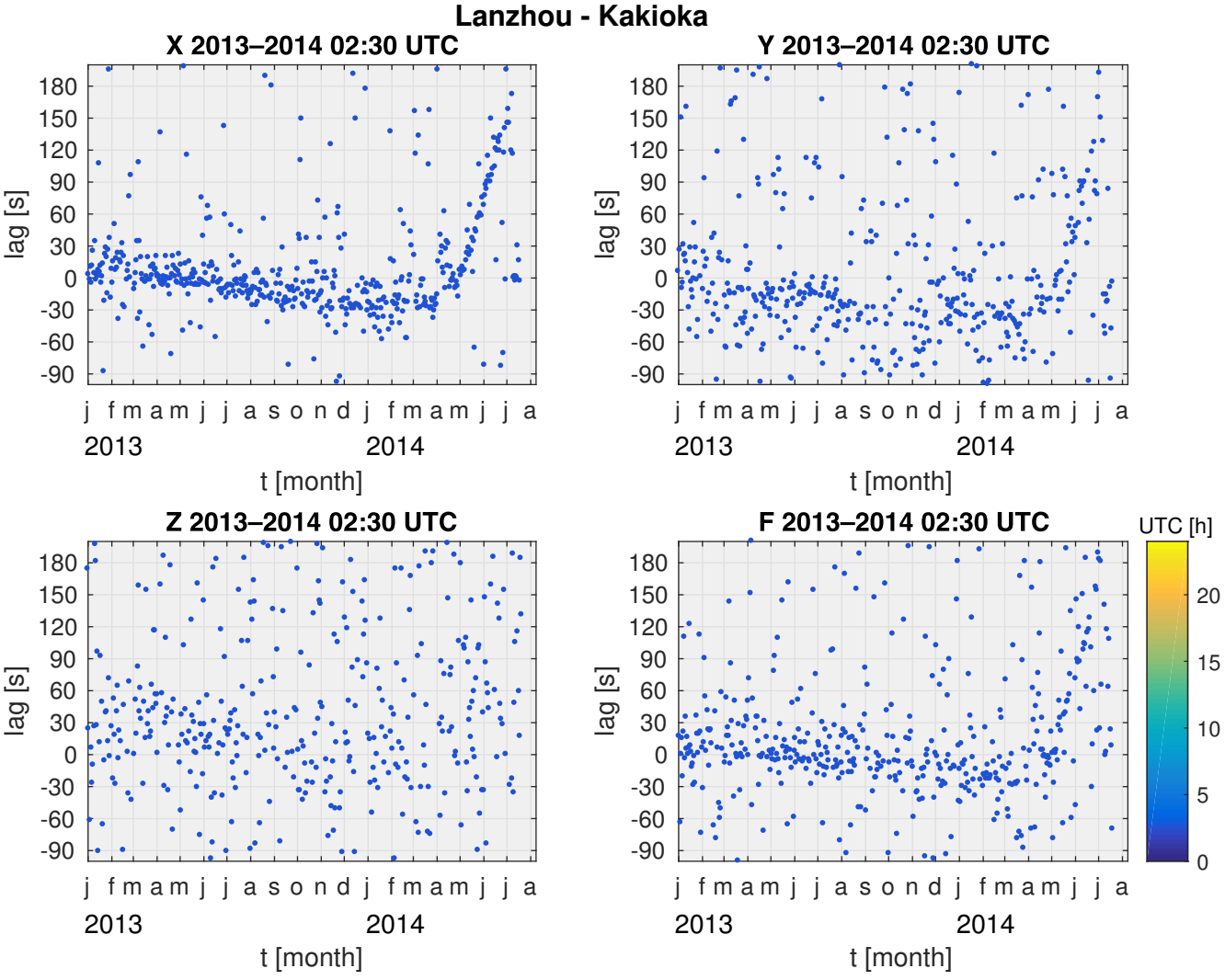

Figure 3. Time lags calculated every day during 15 minutes around 02:30 UTC comparing Lanzhou and Kakioka data for each component of the magnetic field X, Y, Z and F.

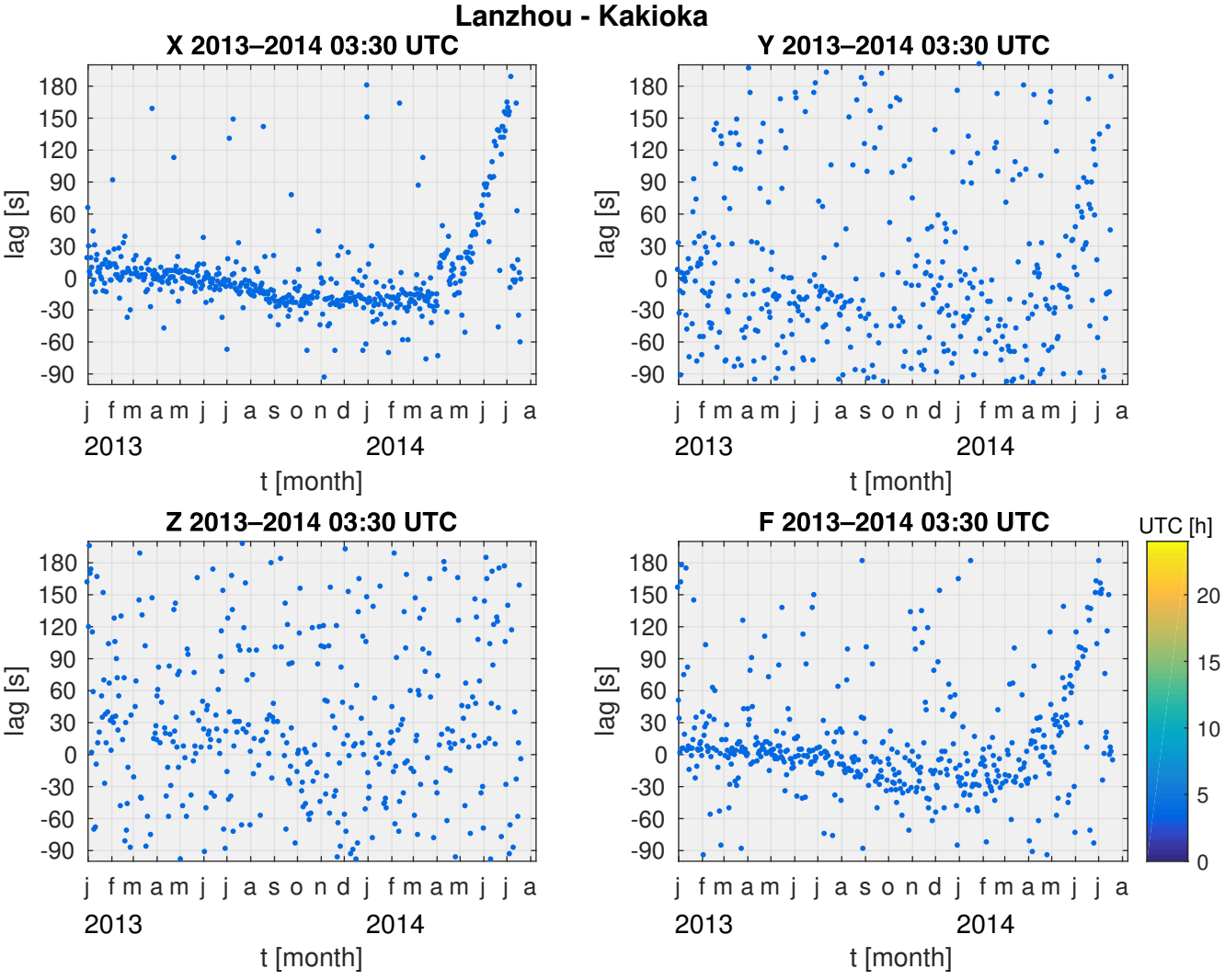

Figure 4. Time lags calculated every day during 15 minutes around 03:30 UTC comparing Lanzhou and Kakioka data for each component of the magnetic field X, Y, Z and F.

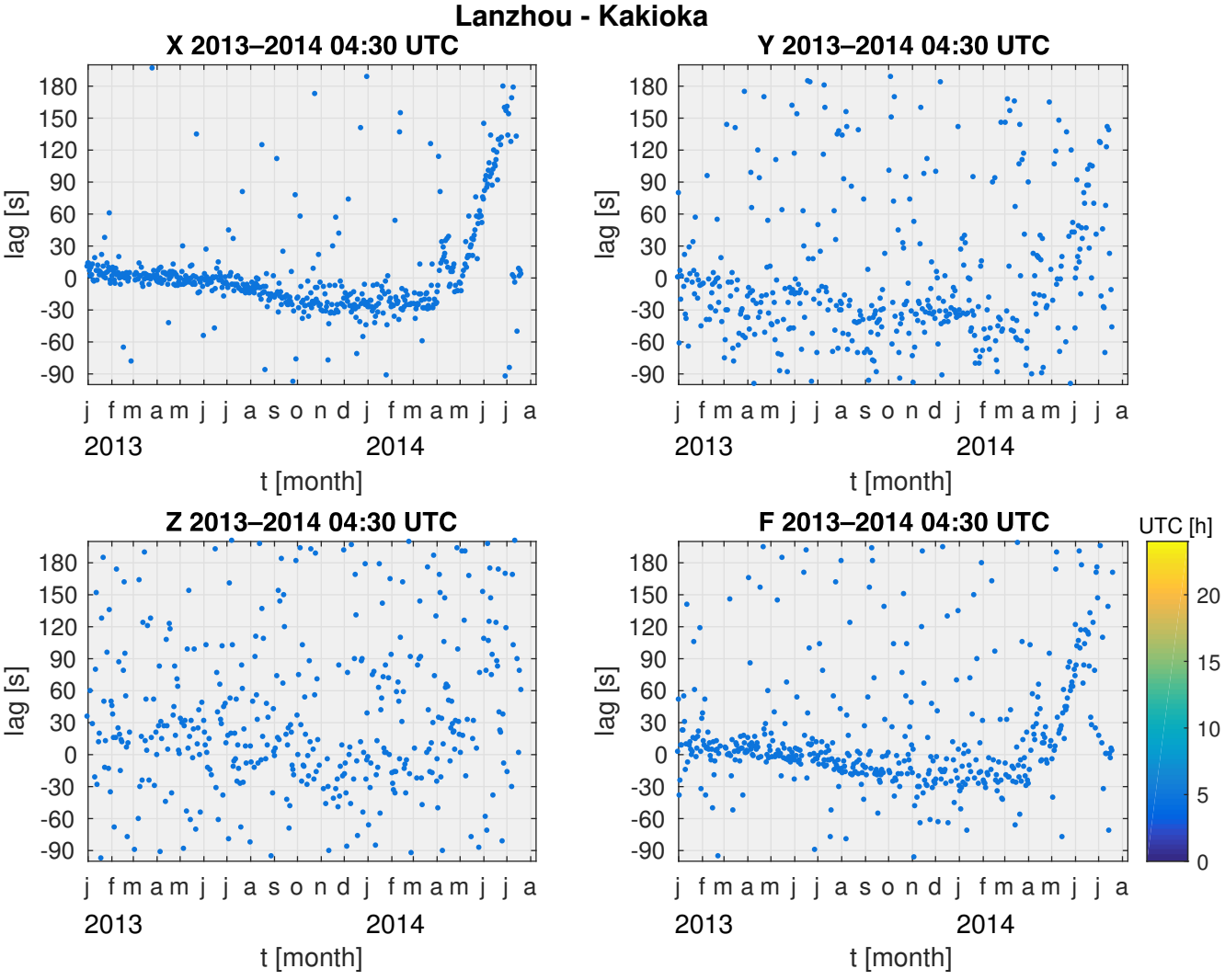

Figure 5. Time lags calculated every day during 15 minutes around 04:30 UTC comparing Lanzhou and Kakioka data for each component of the magnetic field X, Y, Z and F.

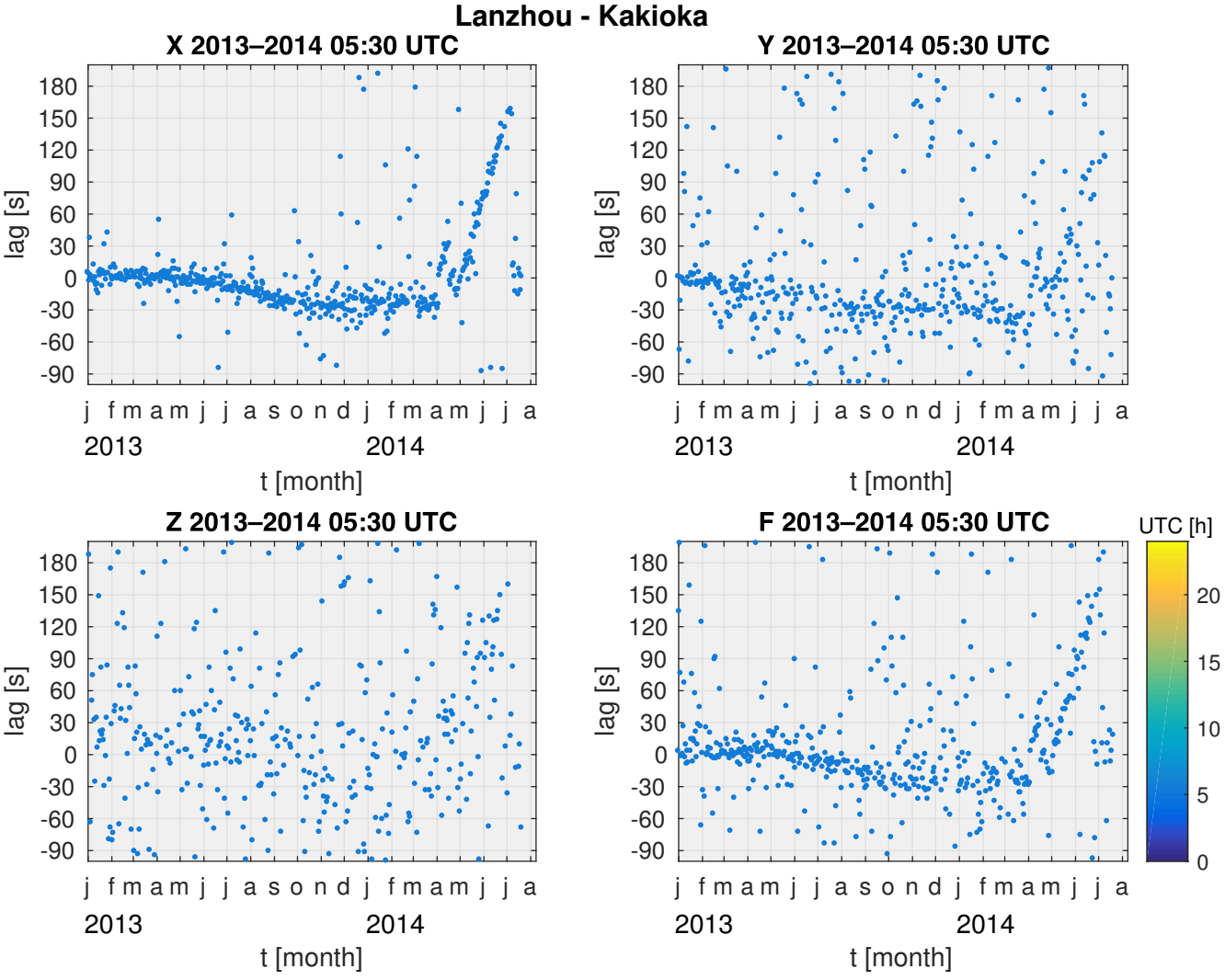

Figure 6. Time lags calculated every day during 15 minutes around 05:30 UTC comparing Lanzhou and Kakioka data for each component of the magnetic field X, Y, Z and F.

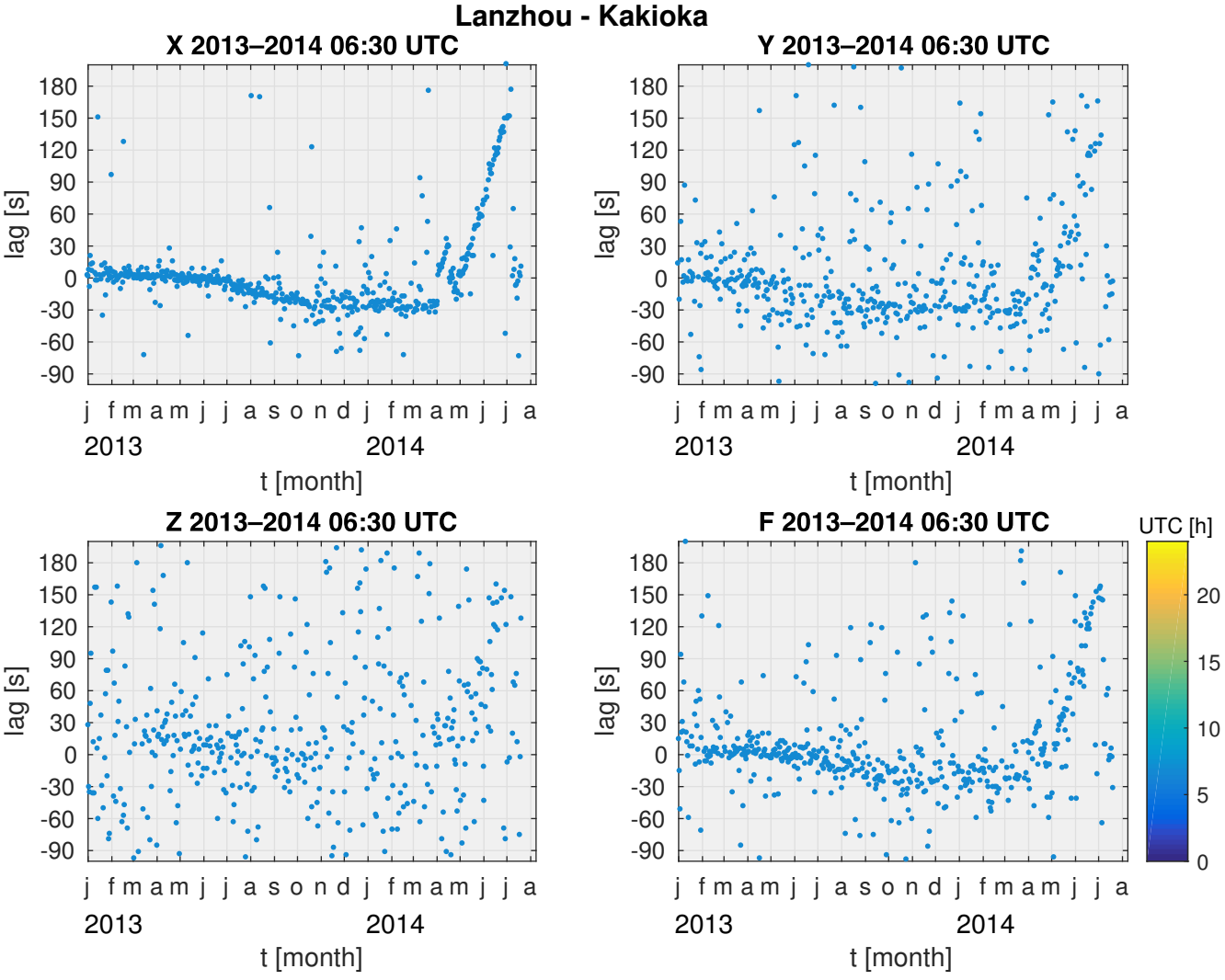

Figure 7. Time lags calculated every day during 15 minutes around 06:30 UTC comparing Lanzhou and Kakioka data for each component of the magnetic field X, Y, Z and F.

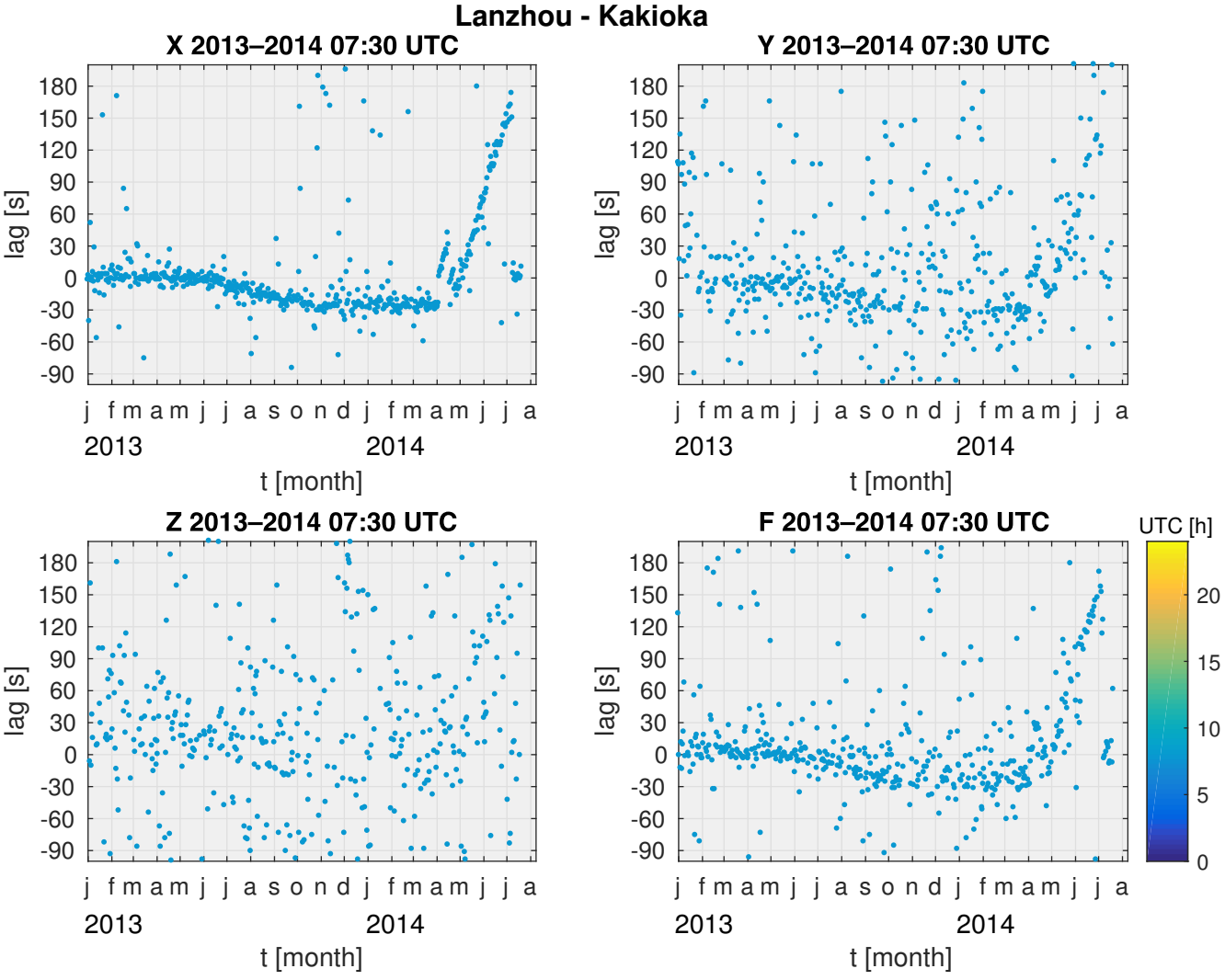

Figure 8. Time lags calculated every day during 15 minutes around 07:30 UTC comparing Lanzhou and Kakioka data for each component of the magnetic field X, Y, Z and F.

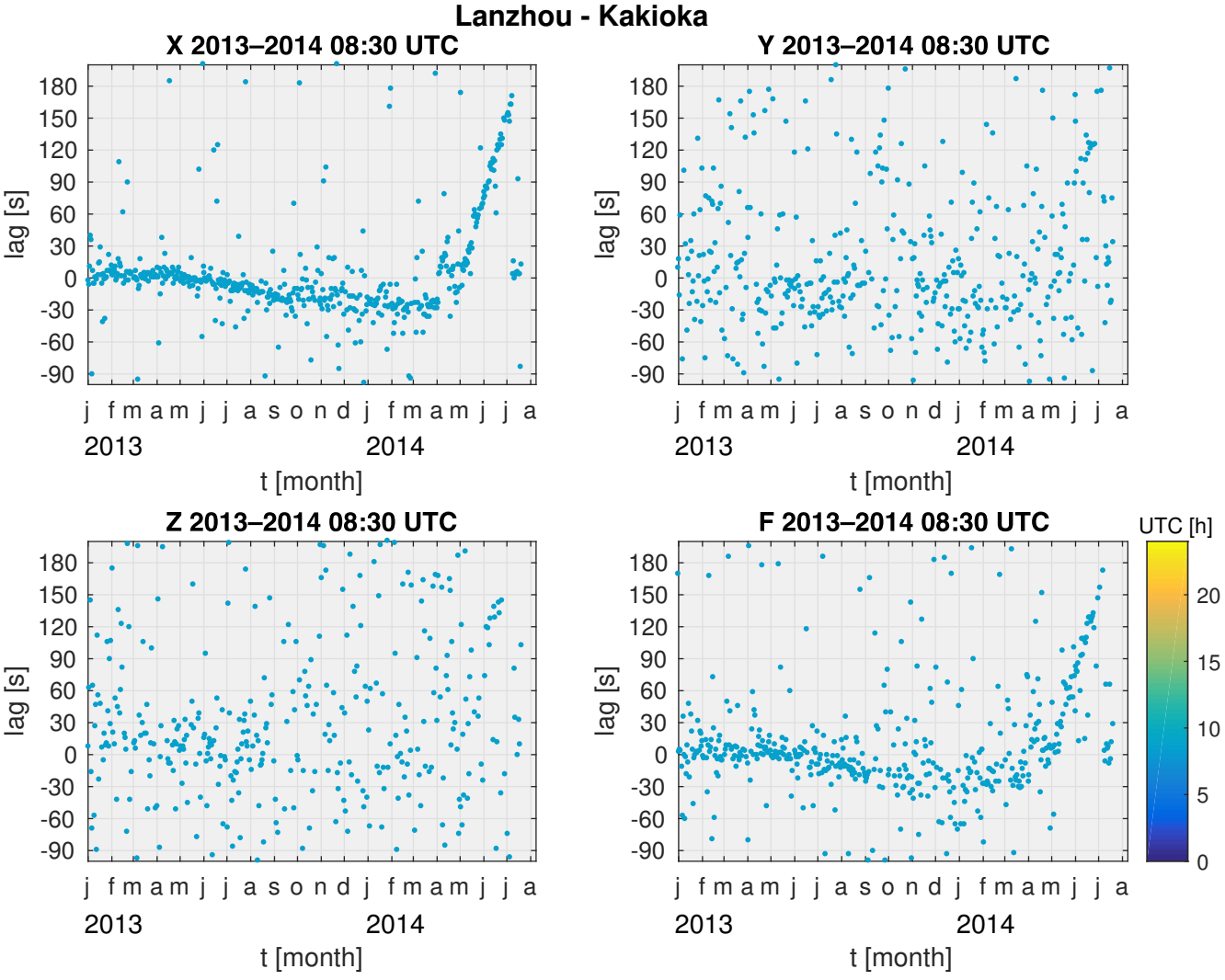

Figure 9. Time lags calculated every day during 15 minutes around 08:30 UTC comparing Lanzhou and Kakioka data for each component of the magnetic field X, Y, Z and F.

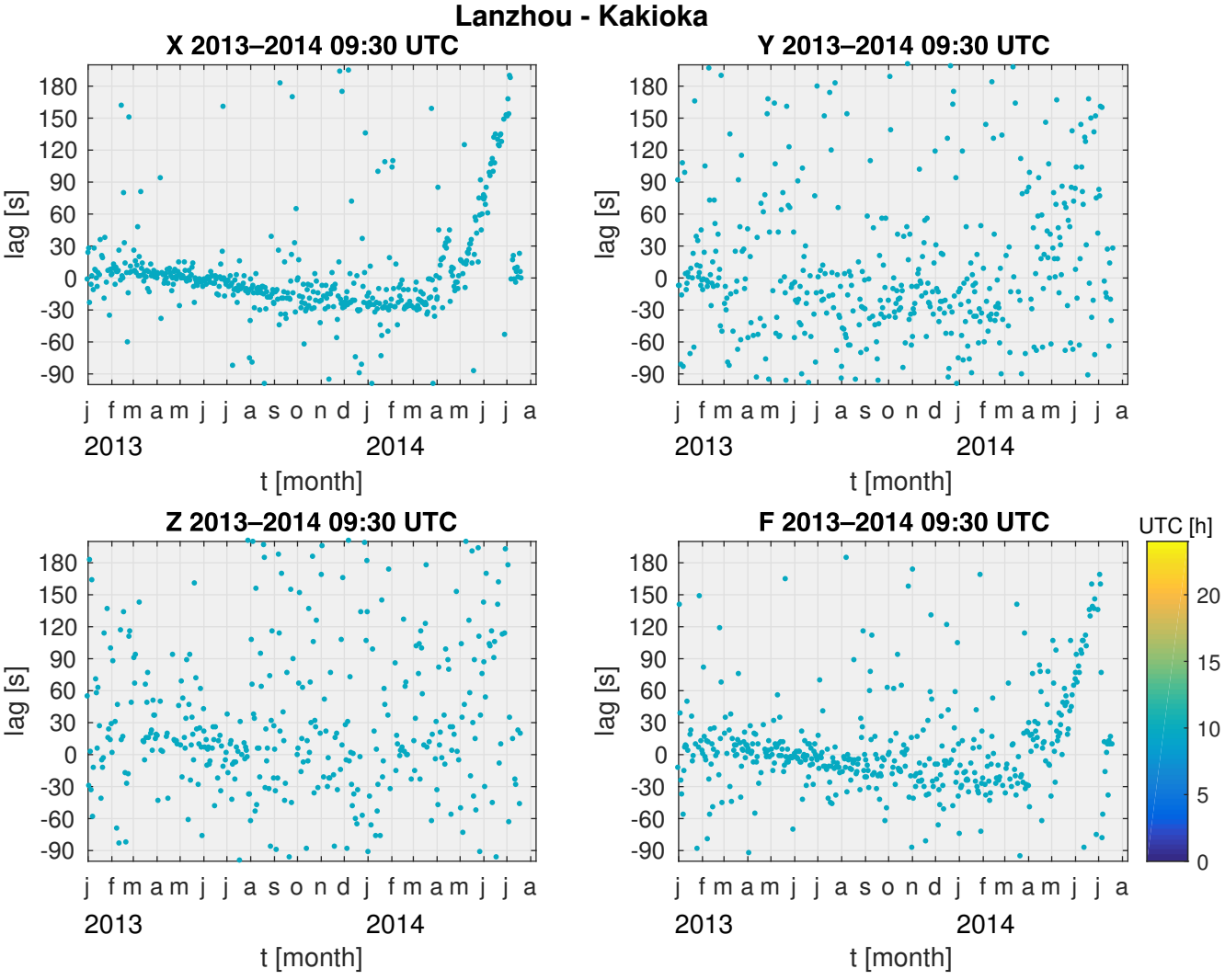

Figure 10. Time lags calculated every day during 15 minutes around 09:30 UTC comparing Lanzhou and Kakioka data for each component of the magnetic field X, Y, Z and F.

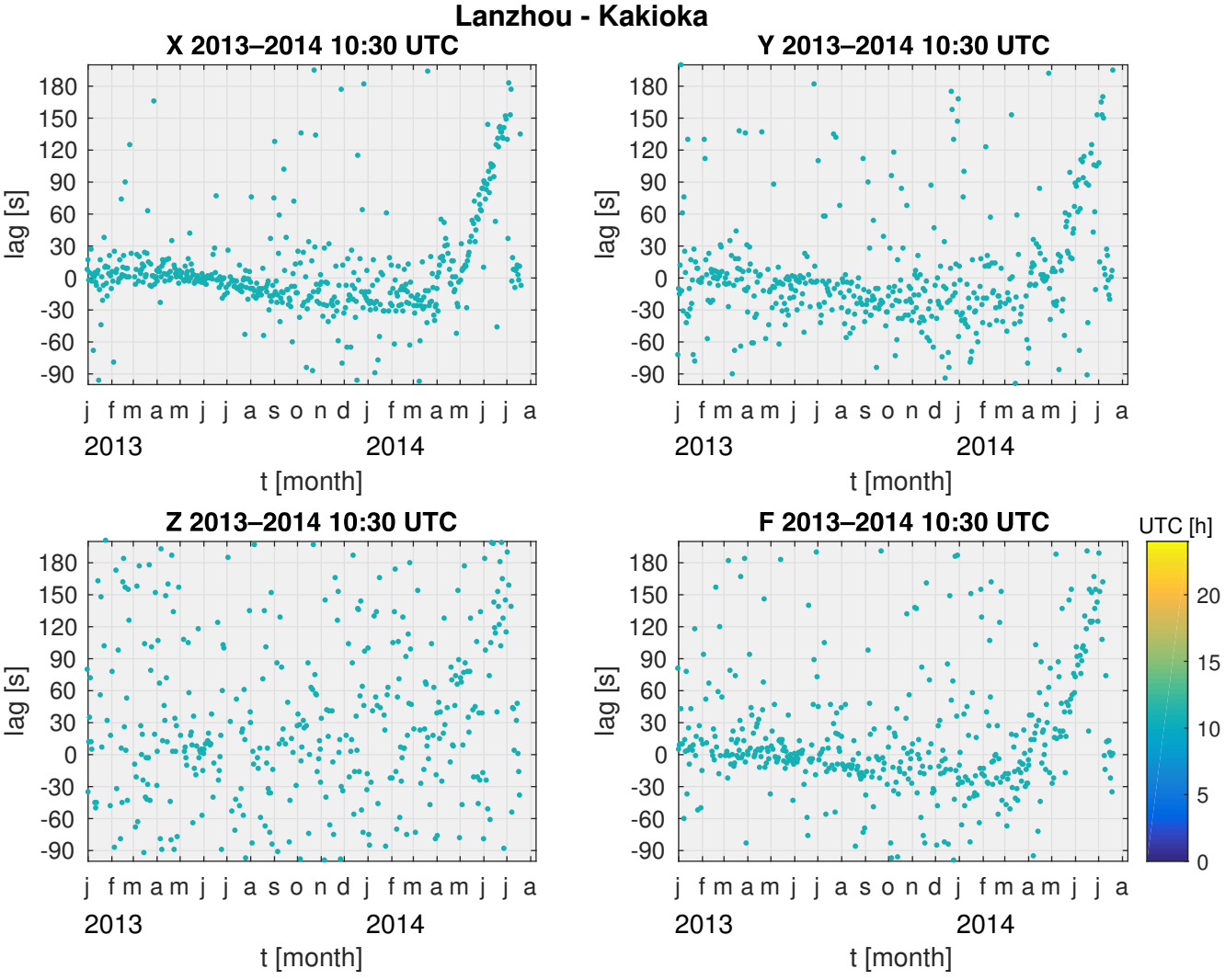

Figure 11. Time lags calculated every day during 15 minutes around 10:30 UTC comparing Lanzhou and Kakioka data for each component of the magnetic field X, Y, Z and F.

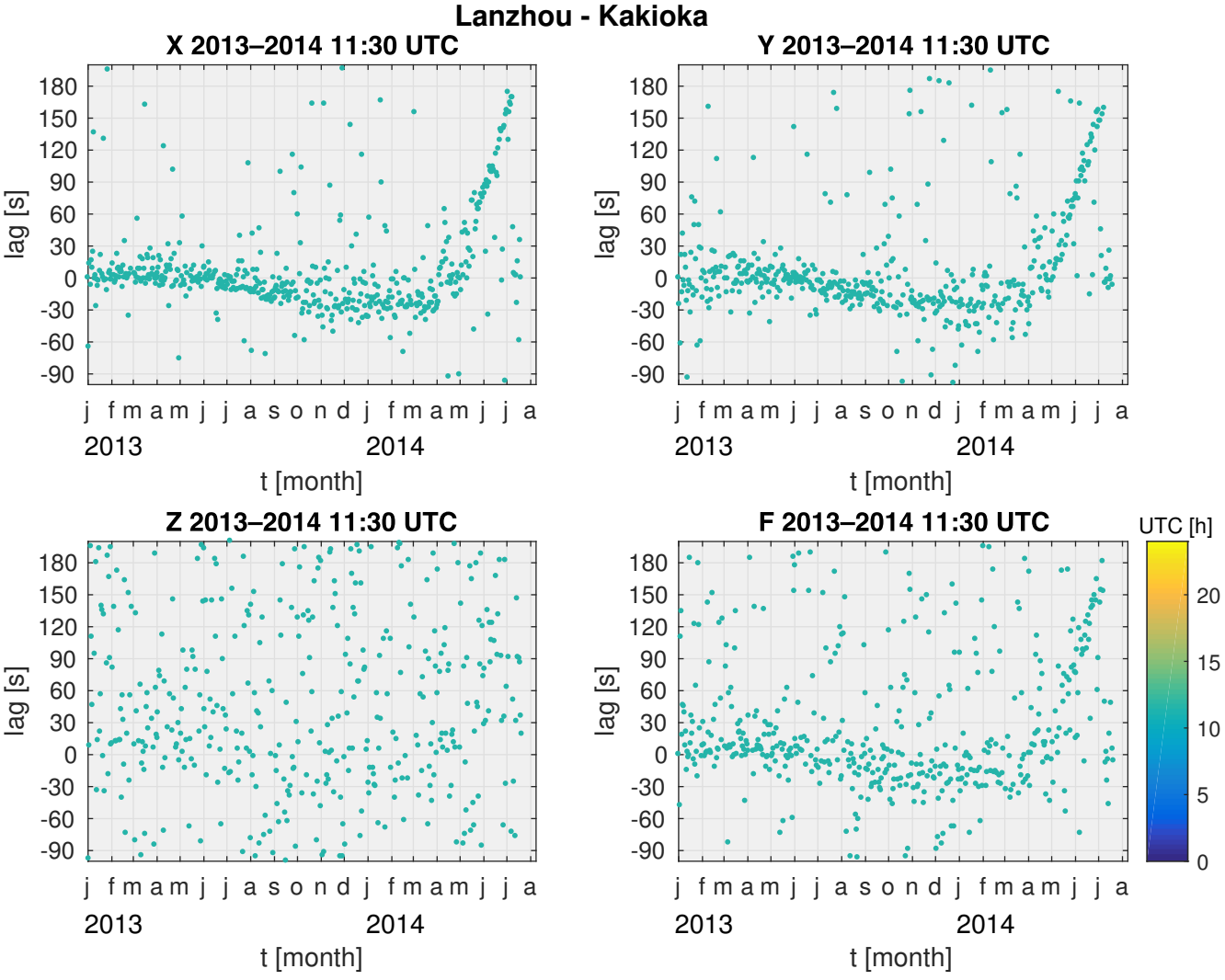

Figure 12. Time lags calculated every day during 15 minutes around 11:30 UTC comparing Lanzhou and Kakioka data for each component of the magnetic field X, Y, Z and F.

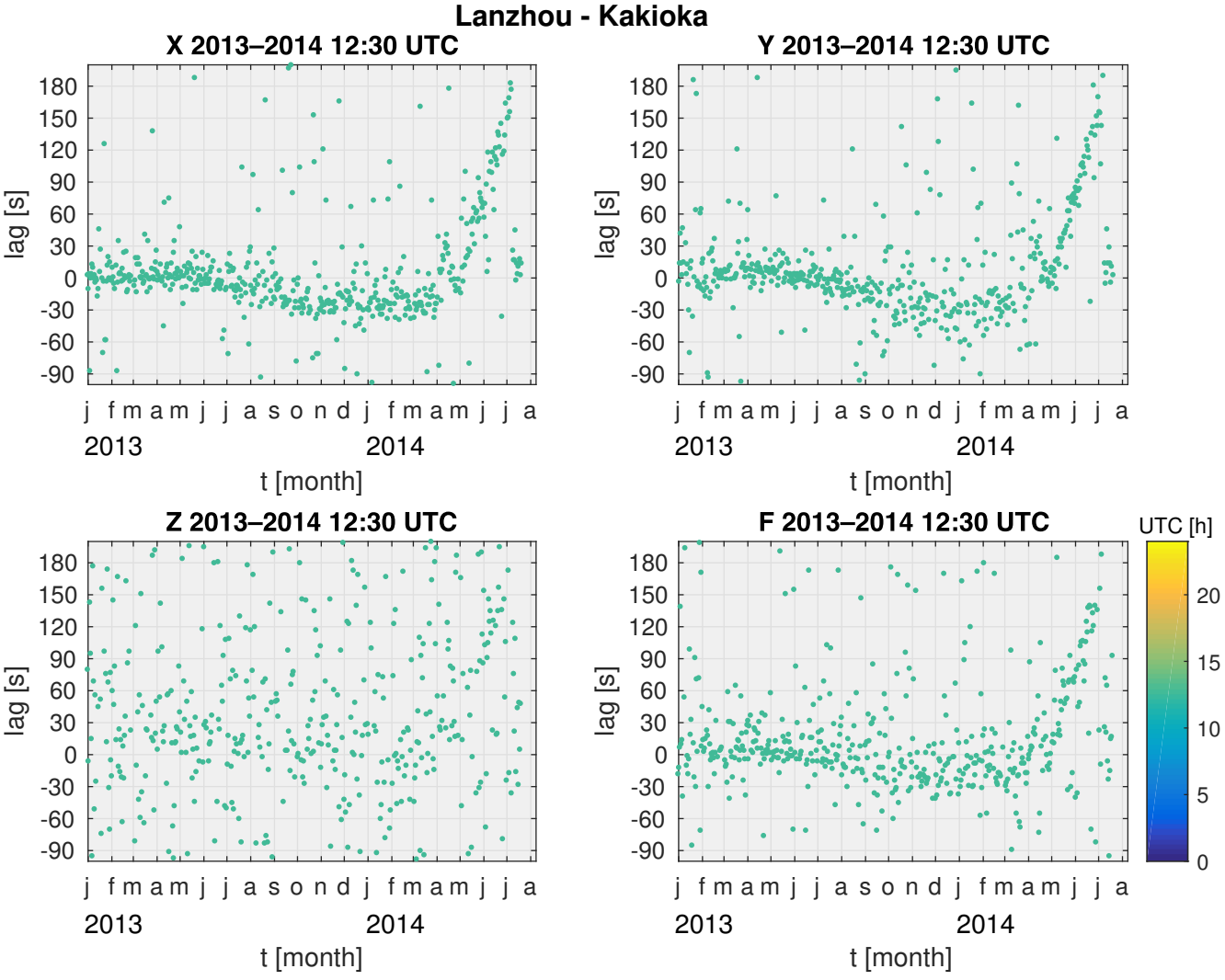

Figure 13. Time lags calculated every day during 15 minutes around 12:30 UTC comparing Lanzhou and Kakioka data for each component of the magnetic field X, Y, Z and F.

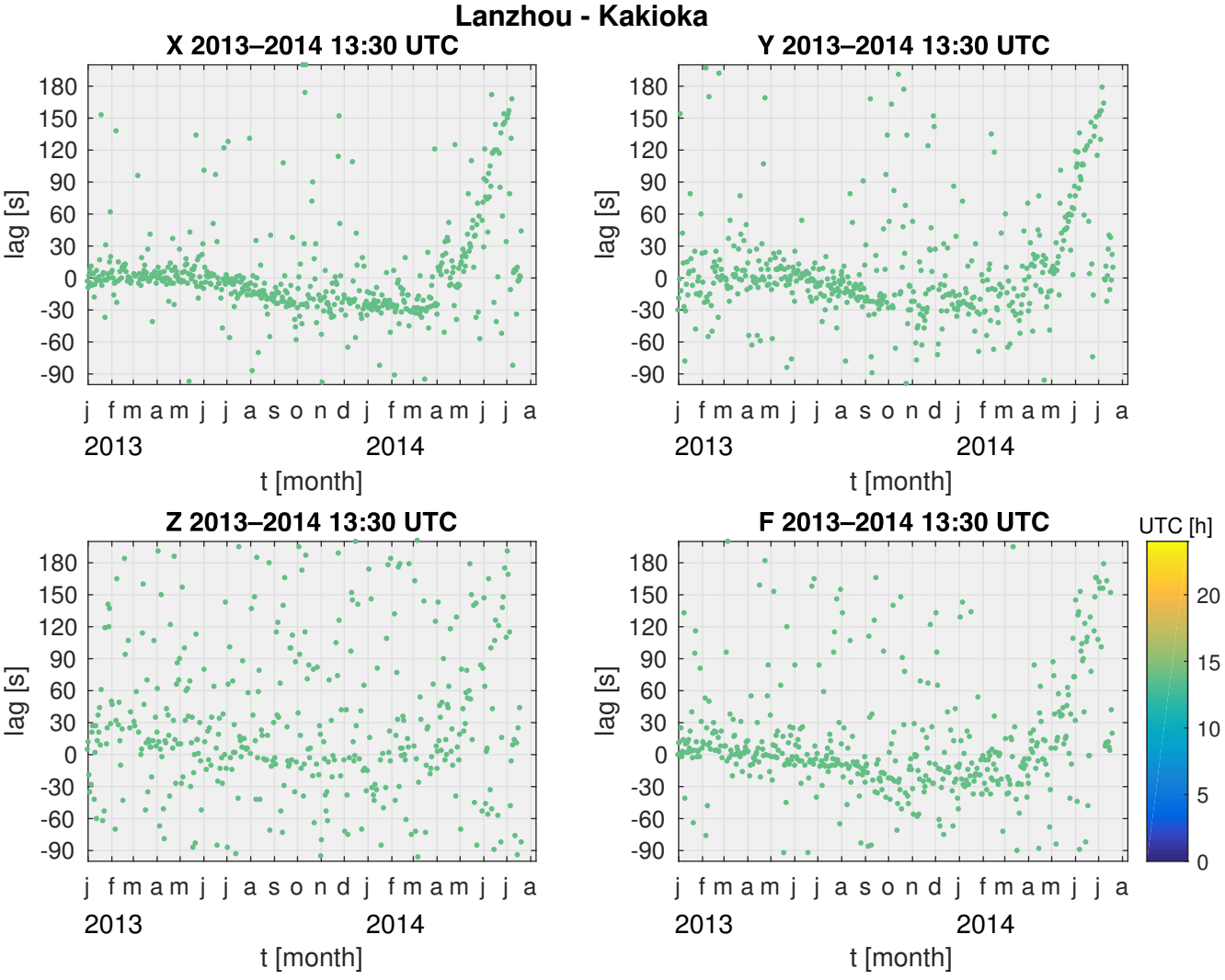

Figure 14. Time lags calculated every day during 15 minutes around 13:30 UTC comparing Lanzhou and Kakioka data for each component of the magnetic field X, Y, Z and F.

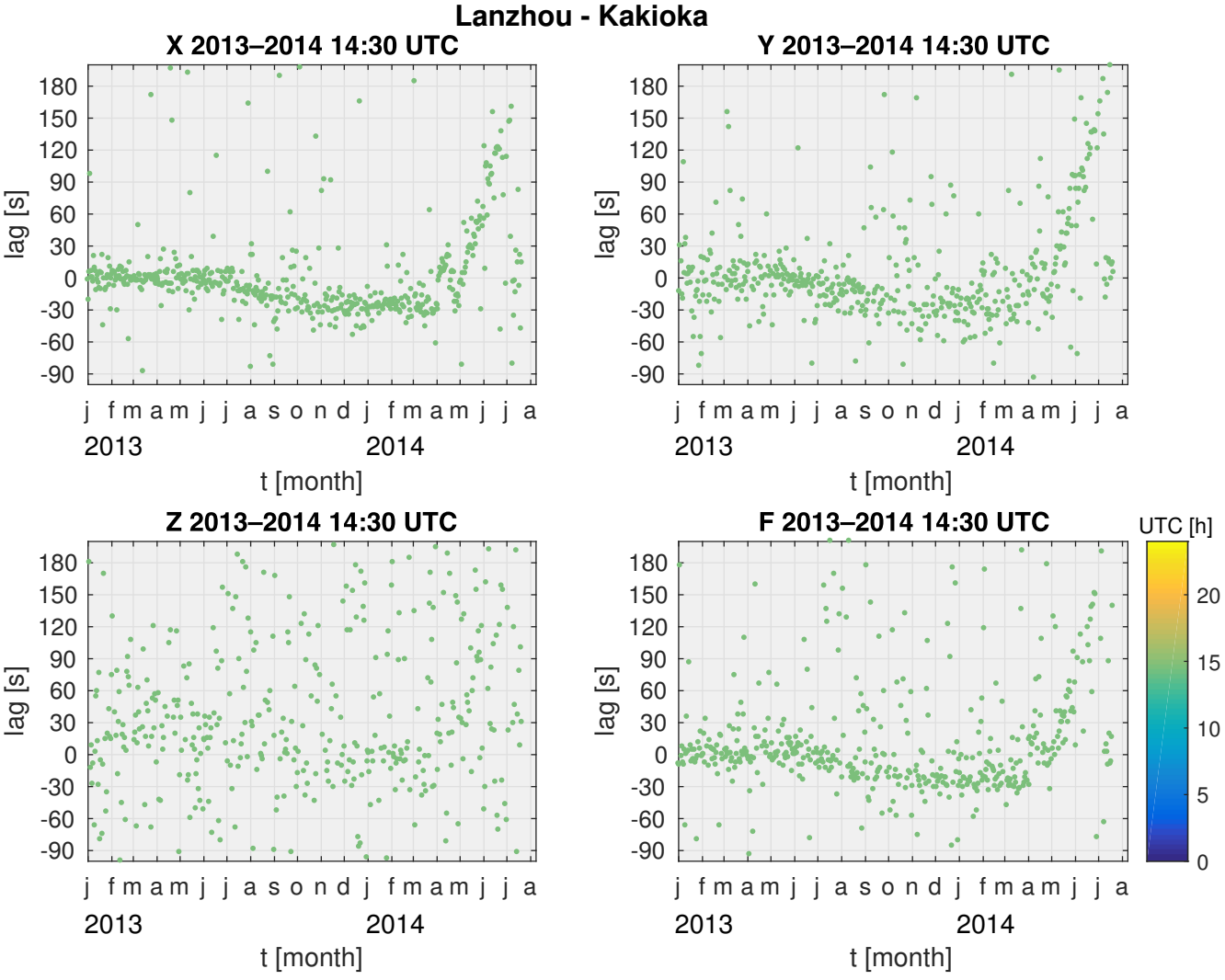

Figure 15. Time lags calculated every day during 15 minutes around 14:30 UTC comparing Lanzhou and Kakioka data for each component of the magnetic field X, Y, Z and F.

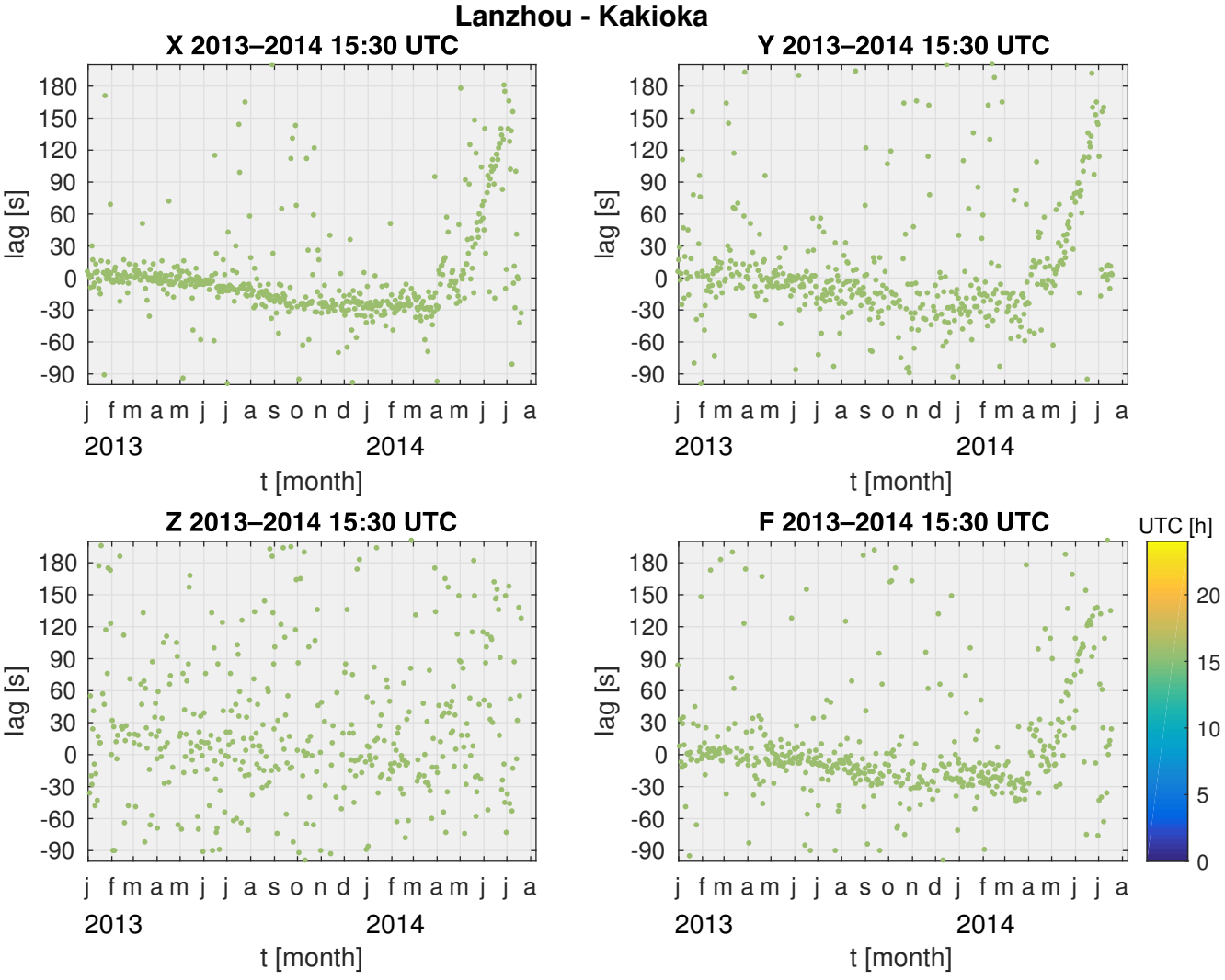

Figure 16. Time lags calculated every day during 15 minutes around 15:30 UTC comparing Lanzhou and Kakioka data for each component of the magnetic field X, Y, Z and F.

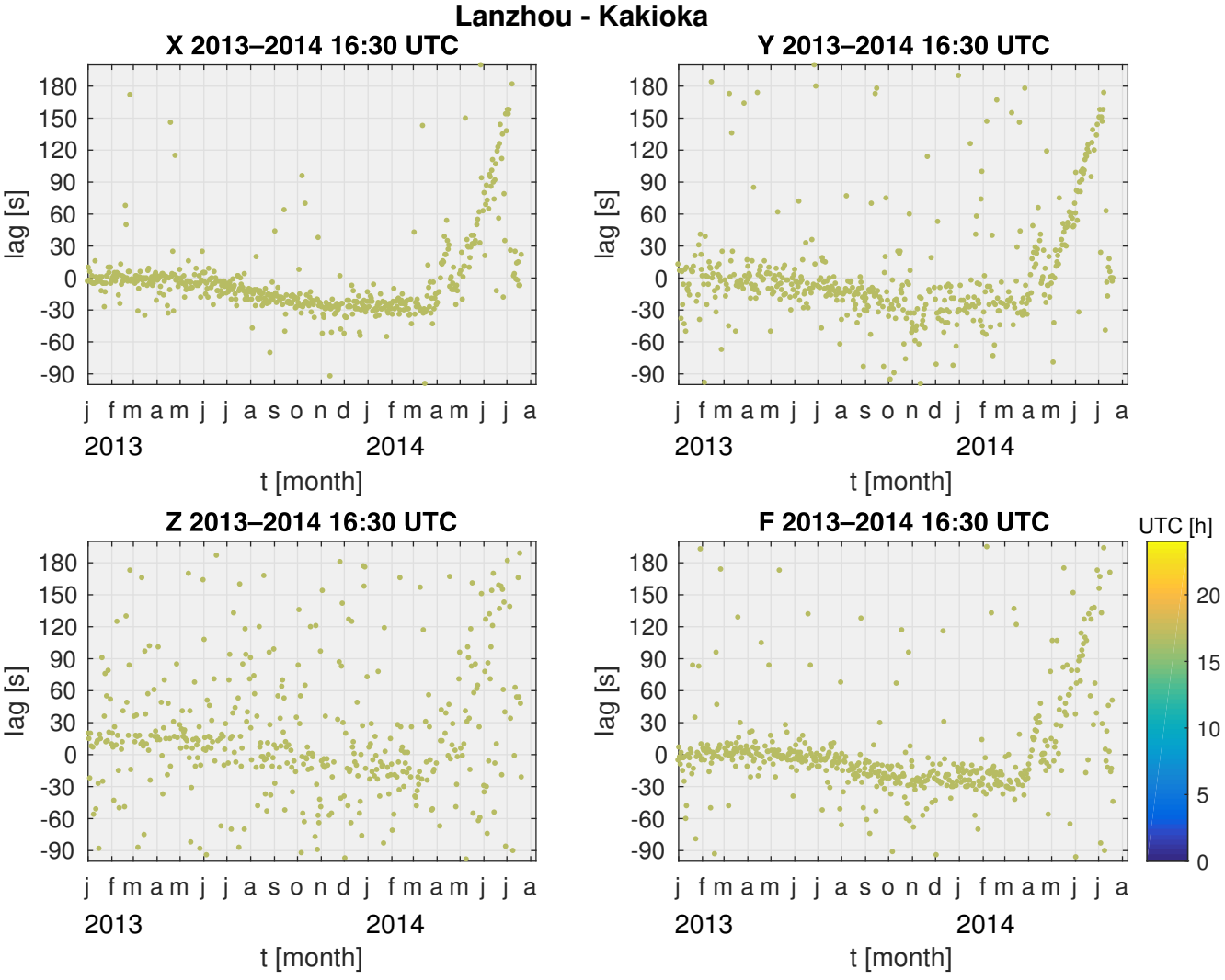

Figure 17. Time lags calculated every day during 15 minutes around 16:30 UTC comparing Lanzhou and Kakioka data for each component of the magnetic field X, Y, Z and F.

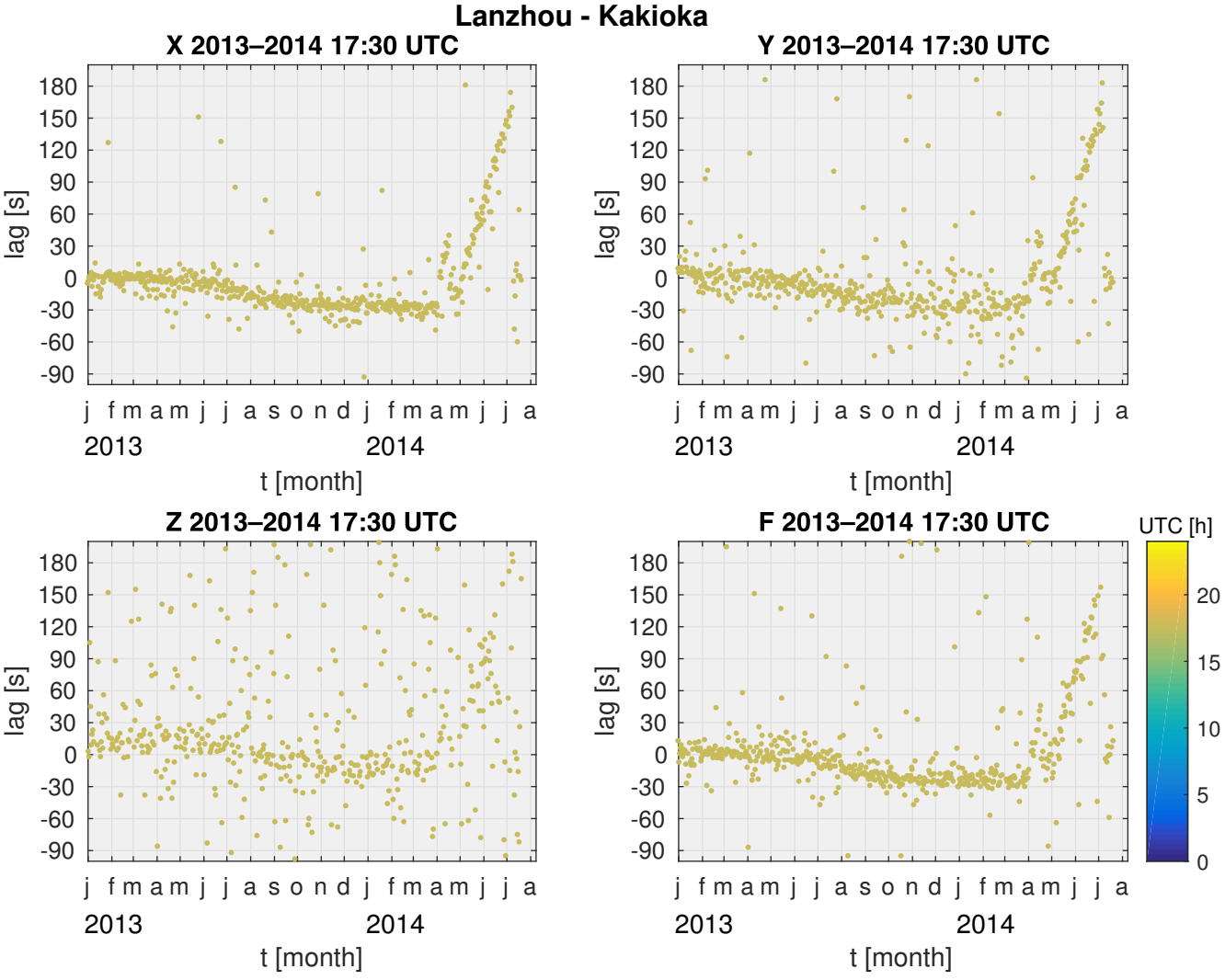

Figure 18. Time lags calculated every day during 15 minutes around 17:30 UTC comparing Lanzhou and Kakioka data for each component of the magnetic field X, Y, Z and F.

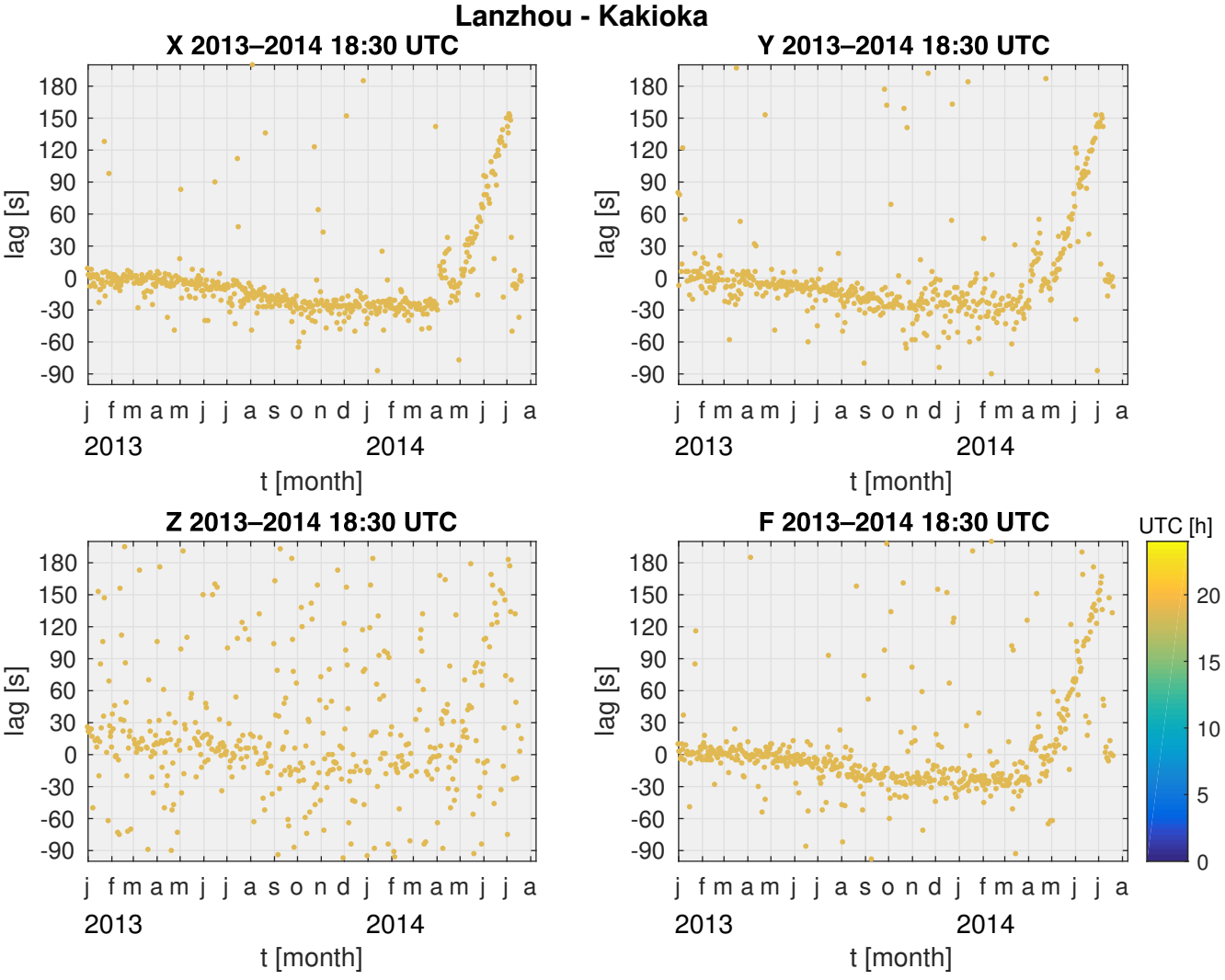

Figure 19. Time lags calculated every day during 15 minutes around 18:30 UTC comparing Lanzhou and Kakioka data for each component of the magnetic field X, Y, Z and F.

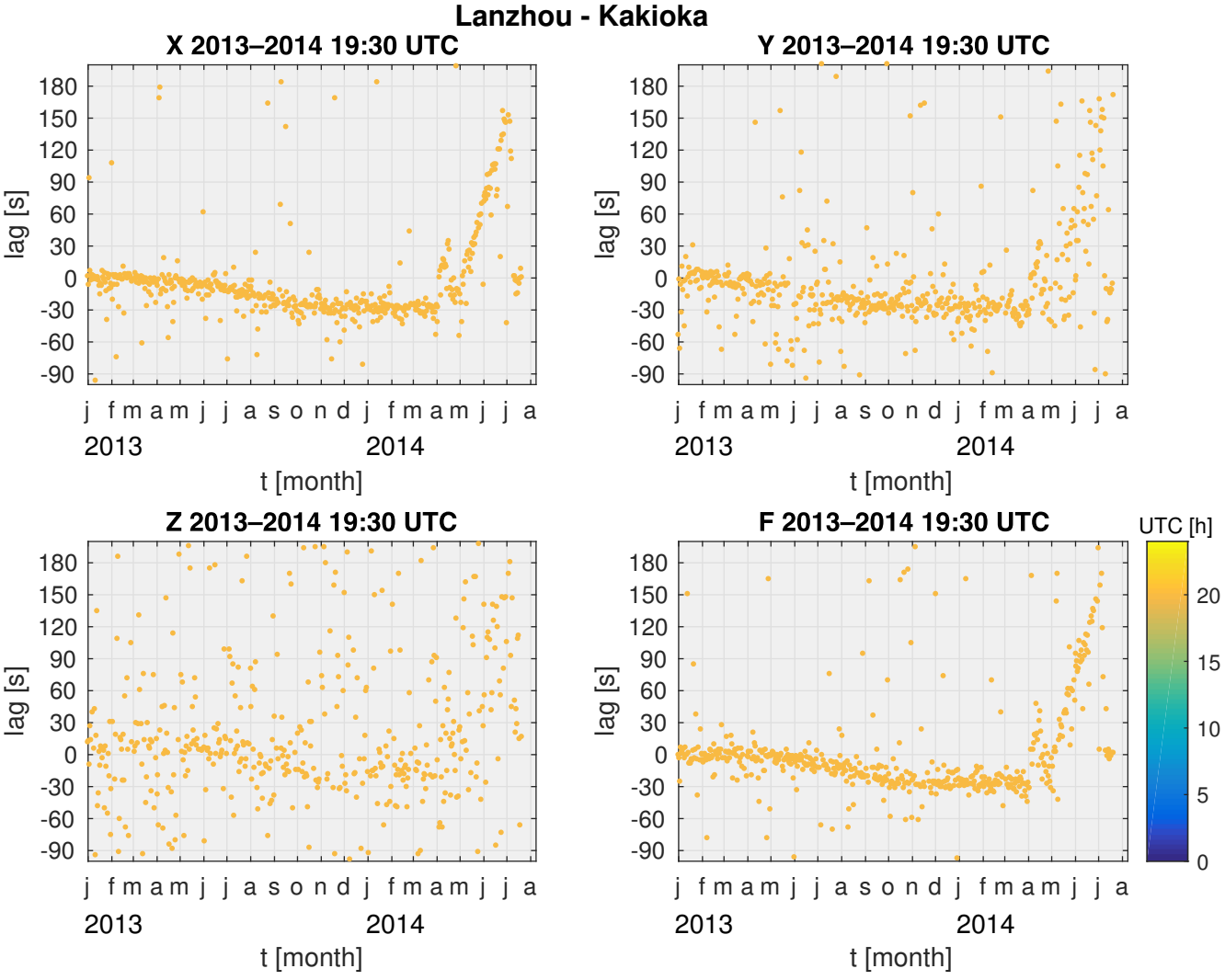

Figure 20. Time lags calculated every day during 15 minutes around 19:30 UTC comparing Lanzhou and Kakioka data for each component of the magnetic field X, Y, Z and F.

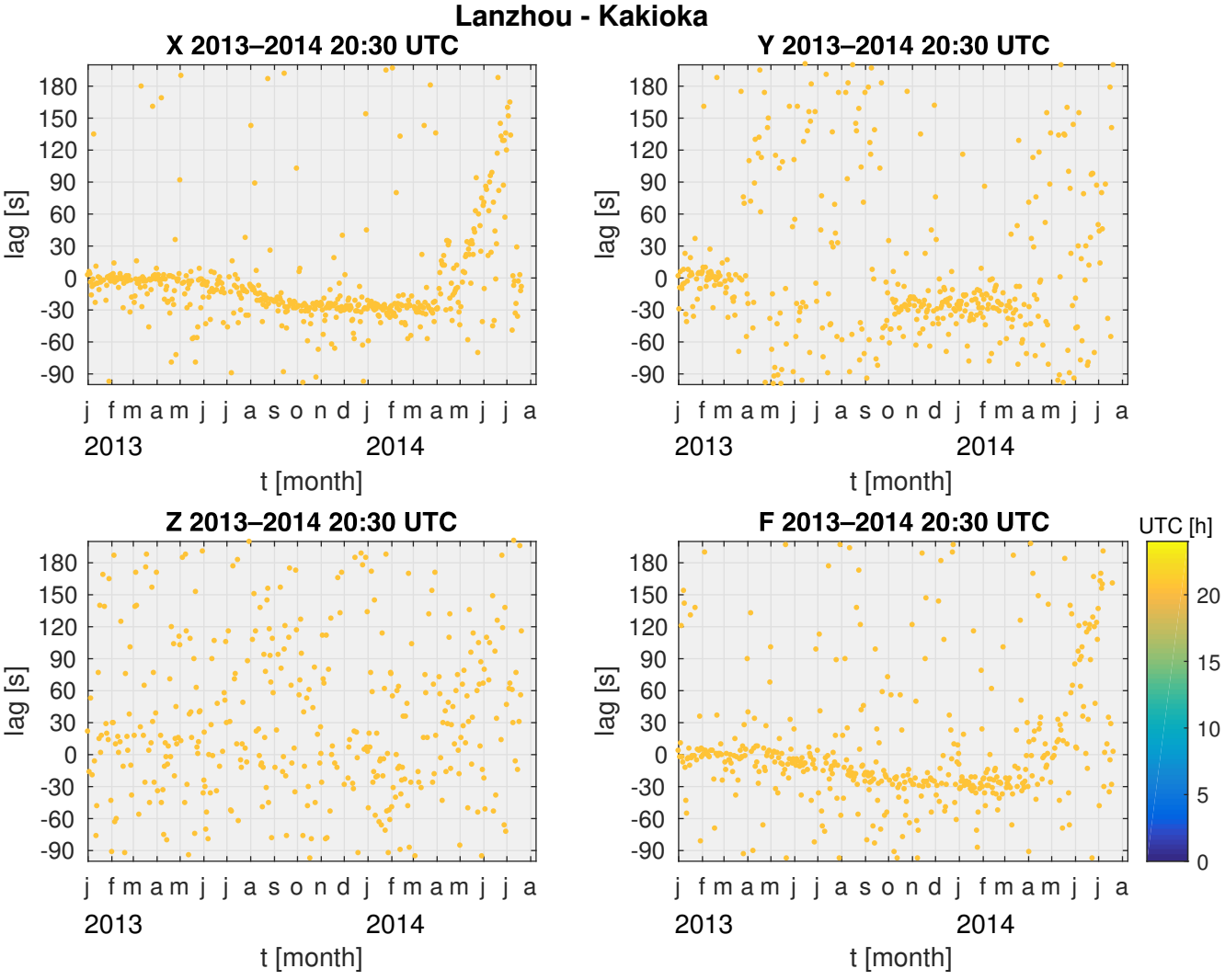

Figure 21. Time lags calculated every day during 15 minutes around 20:30 UTC comparing Lanzhou and Kakioka data for each component of the magnetic field X, Y, Z and F.

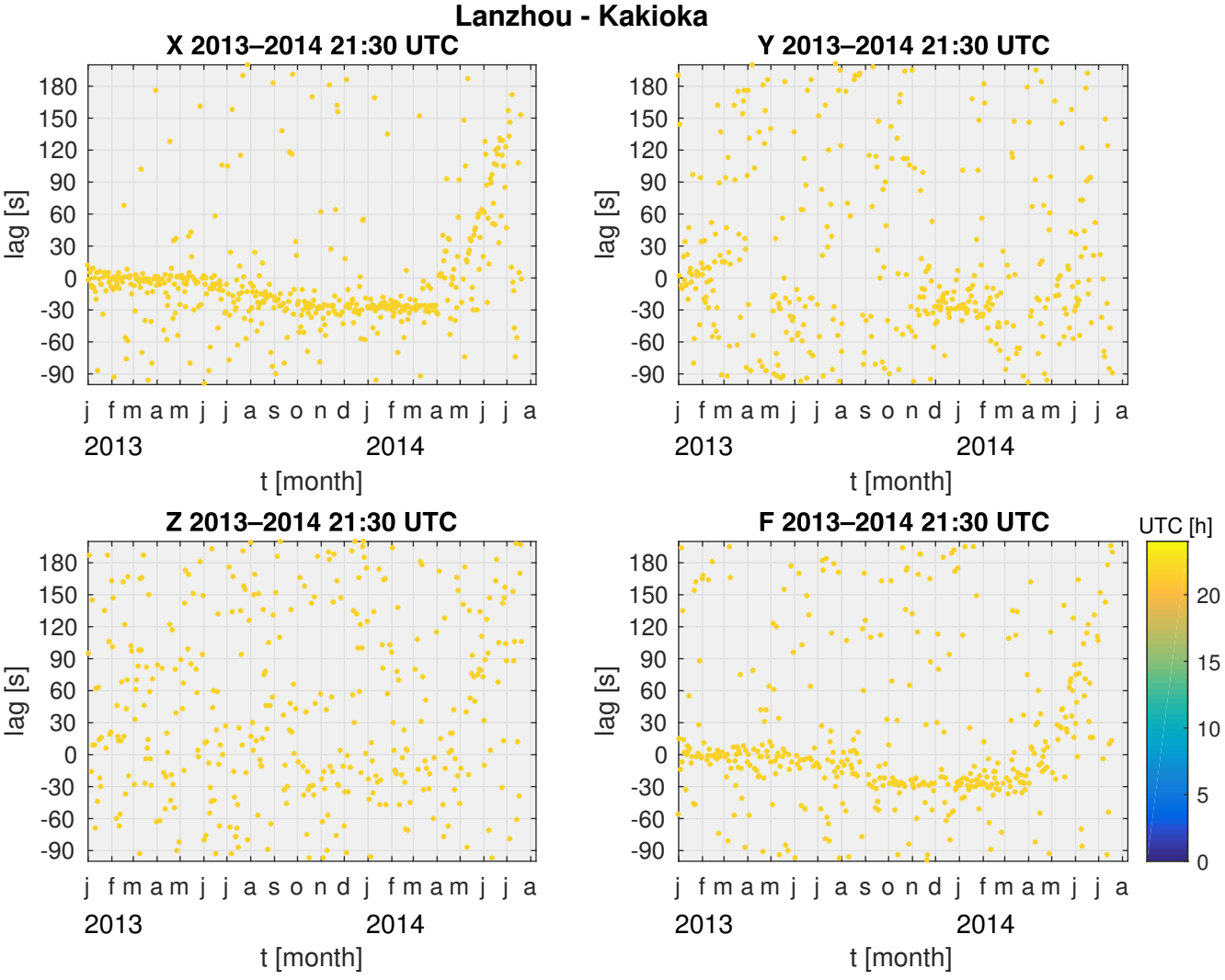

Figure 22. Time lags calculated every day during 15 minutes around 21:30 UTC comparing Lanzhou and Kakioka data for each component of the magnetic field X, Y, Z and F.

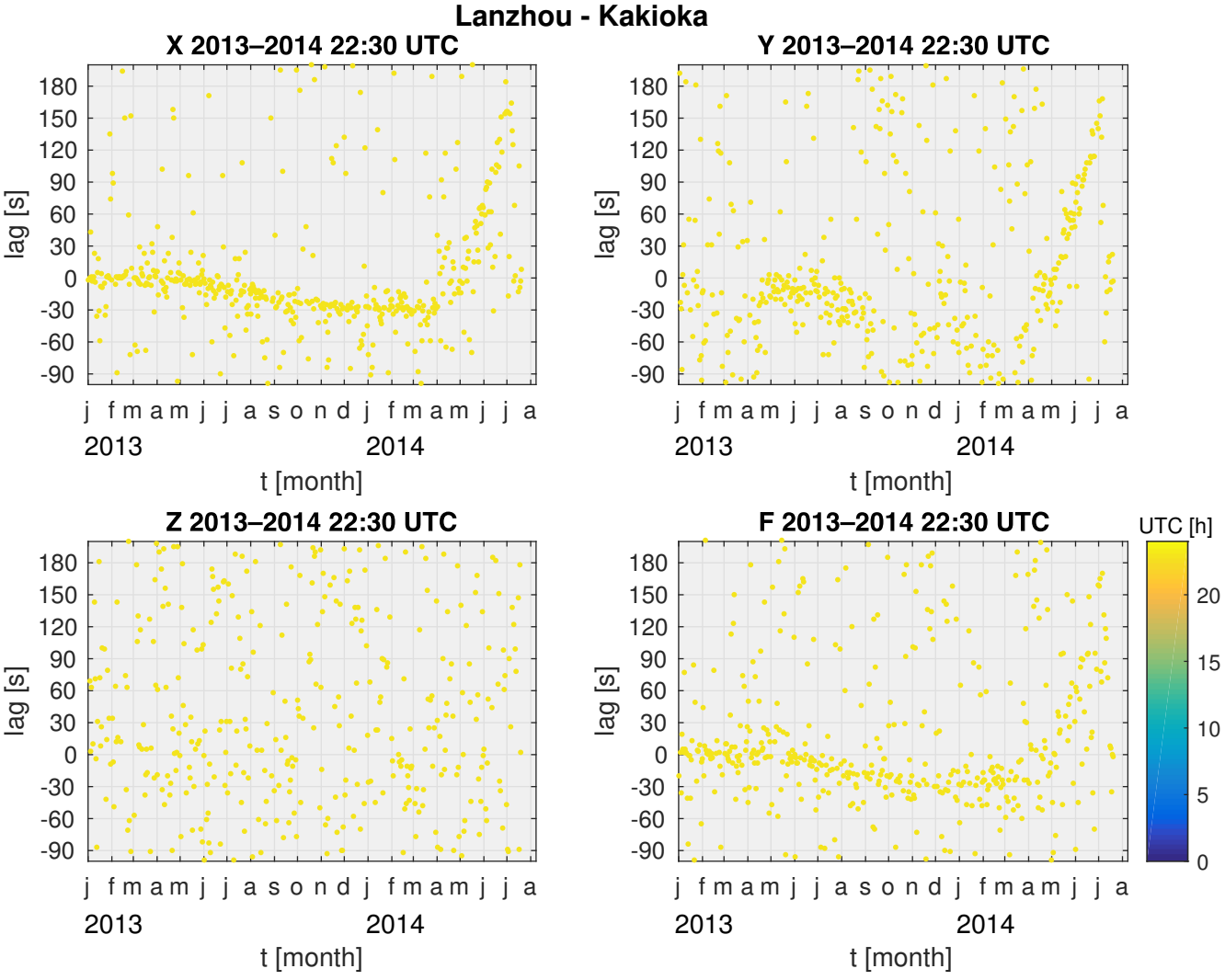

Figure 23. Time lags calculated every day during 15 minutes around 22:30 UTC comparing Lanzhou and Kakioka data for each component of the magnetic field X, Y, Z and F.

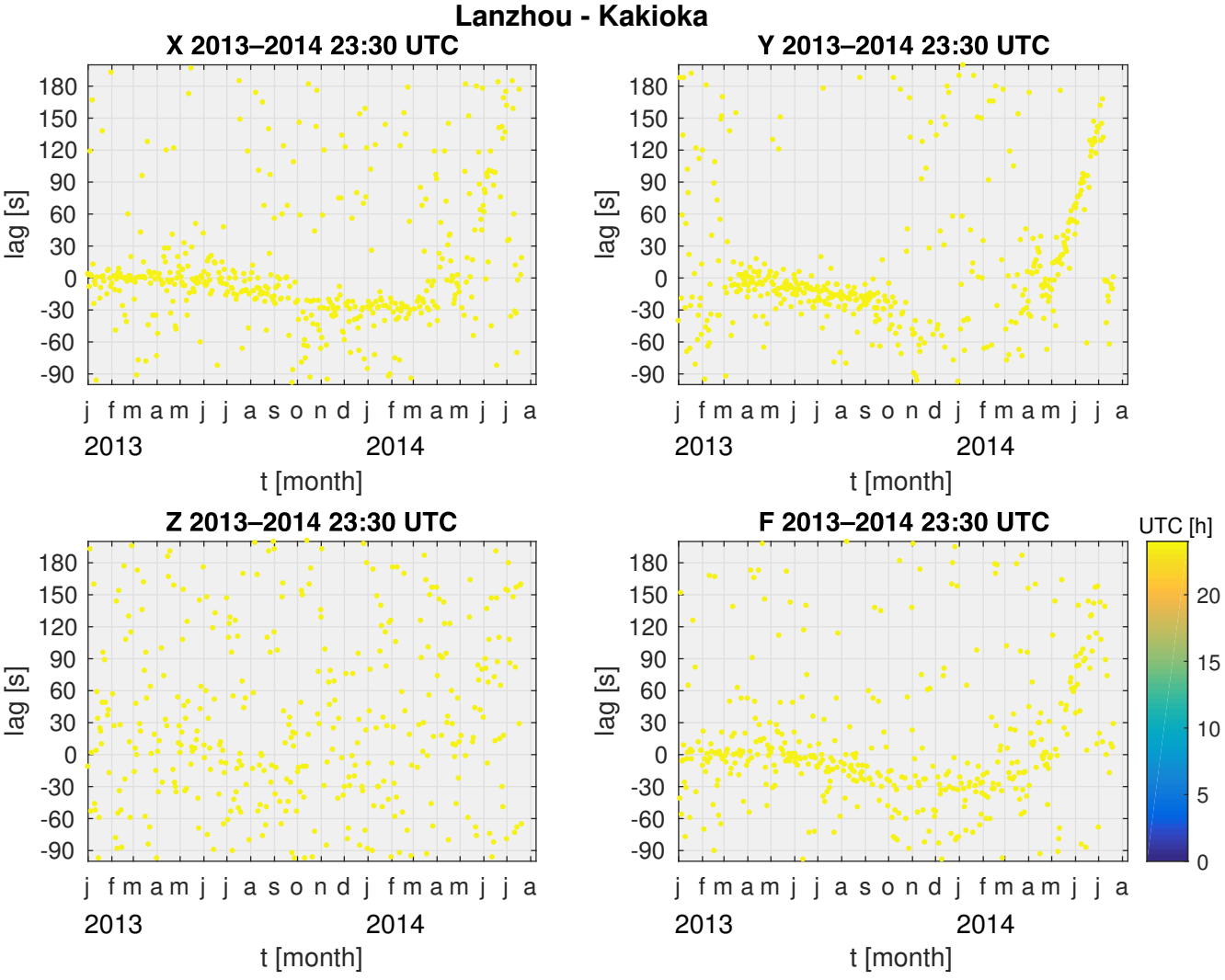

Figure 24. Time lags calculated every day during 15 minutes around 23:30 UTC comparing Lanzhou and Kakioka data for each component of the magnetic field X, Y, Z and F.

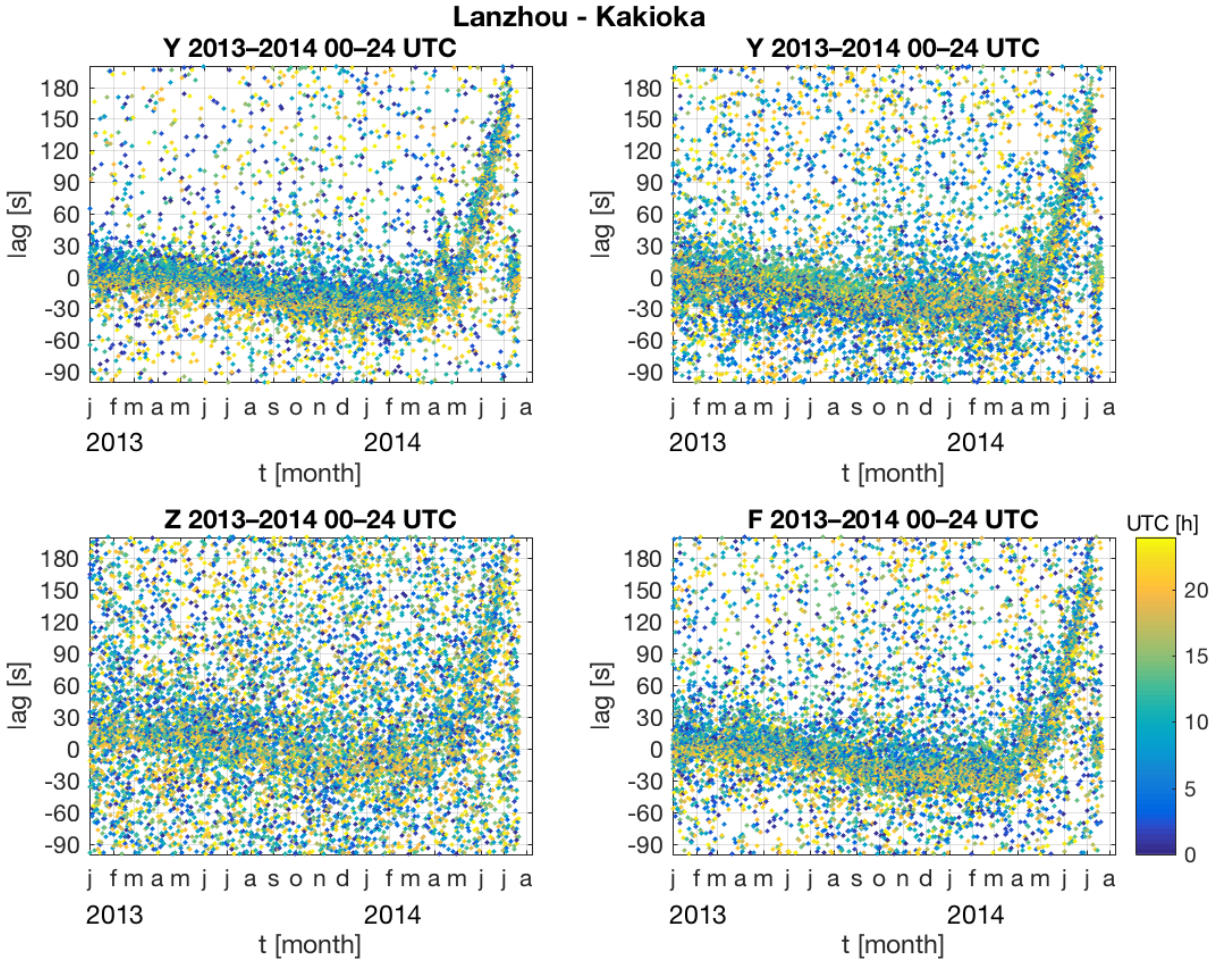

Figure 25. Time lags calculated every hour comparing Lanzhou and Kakioka data for each component of the magnetic field X, Y, Z and F.