The Fe-Ka line emission at 6.4 keV from molecular clouds (MCs) in the Galactic Centre (GC) region is due to fluorescence, produced by hard X-rays and/or high energy particles hitting the cold molecular gas. The total Fe-Ka flux requires an X-ray luminosity of the ionising source of $\sim 10^{39}$ erg s$^{-1}$. Currently, no X-ray source in the GC has been observed to be so bright. Therefore, the favoured interpretation is that this peculiar line emission is a 6.4 keV echo of the radiation produced by a past giant flare (≥10 years) of Sgr A*. (Sunyaev et al. 1993, Koyama et al. 1996).

Recently, Ponti et al. 2010 showed that the Fe-Ka line flux from the MCs within 30 pc from Sgr A* exhibit a complex pattern of variability. Assuming that the same flare illuminated these MCs, it is possible to infer their distance along the line of sight (left), dependent on the assumed Fe abundance ($Z_{Fe}$) and cloud density ($N_H$). However, by measuring in the X-ray spectrum the optical depth $\tau_{6.4}$ of the absorption at the Fe-K edge (7.1 keV), we obtain the relevant factor directly.

The cloud column densities inferred by our measurements of $\tau_{6.4}$ are significantly larger than the values estimated by Ponti et al. (2010) from radio data, and are in much better agreement with the theoretical prediction of an inverse proportionality between the cloud density and the slope of the reflected continuum. As a consequence, the 3D distribution of these MCs previously proposed must be severely revised. We converted the lightcurves of the 6.4-keV line of the selected MCs into a lightcurve for the putative source Sgr A*: the delay of the Fe-Ka signal with respect to the direct radiation Sgr A* observer is function of the geometry ($\theta$). We divided the MCs in sub-groups depending on the displayed variability of the 6.4-keV line (increase, decrease, constant). The goal is to find regions of the $L_x$-delay plot where these sub-groups of clouds cluster.

- B1,F. They well reflect the same drop in the $L_x$ occurred 100 years ago - 4 to $2 \times 10^{37}$ erg s$^{-1}$.
- B2,C,D. The increasing Fe-Ka flux in these MCs might be due to a burst occurred around 130 years ago, with an $L_x$ excursion from $10^{37}$ to $10^{38}$ erg s$^{-1}$.
- Others. Constant level of activity at $10^{37}$ erg s$^{-1}$ around 70-80 years ago.

Plotting all the results in a lightcurve (right) gives the view of the X-ray activity of Sgr A* over the last 400 years. Starting with a $L_x\sim 10^{30}$ erg s$^{-1}$ required by the Sgr B2 MC (Terrier et al. 2011), whose end can be dated back to 155 years ago, the Sgr A* X-ray activity shows a decreasing trend staggered by sudden episodes of brightening. We cannot model the real shape of the lightcurve because of the lack of MCs shining in the 6.4 keV line flux in the blank region. We can only assume either a continuum decreasing trend, or sharp outbursts (whose duration decreases with time).

**Conclusions.** The Fe-Ka line emission from MCs in the GC region strongly supports the hypothesis of a past illumination by a low AGN activity of Sgr A*. However, we show that this past activity had to be more highly variable than the recently suggested $L_x\sim 10^{39}$ erg s$^{-1}$ constant for 400 years; the MCs close to Sgr A* require an ionising X-ray luminosity between $10^{37}$ and $10^{38}$ erg s$^{-1}$.

**References:** Capelli R. et al. 2011[c], in preparation; Terrier et al. 2010 (and references therein)