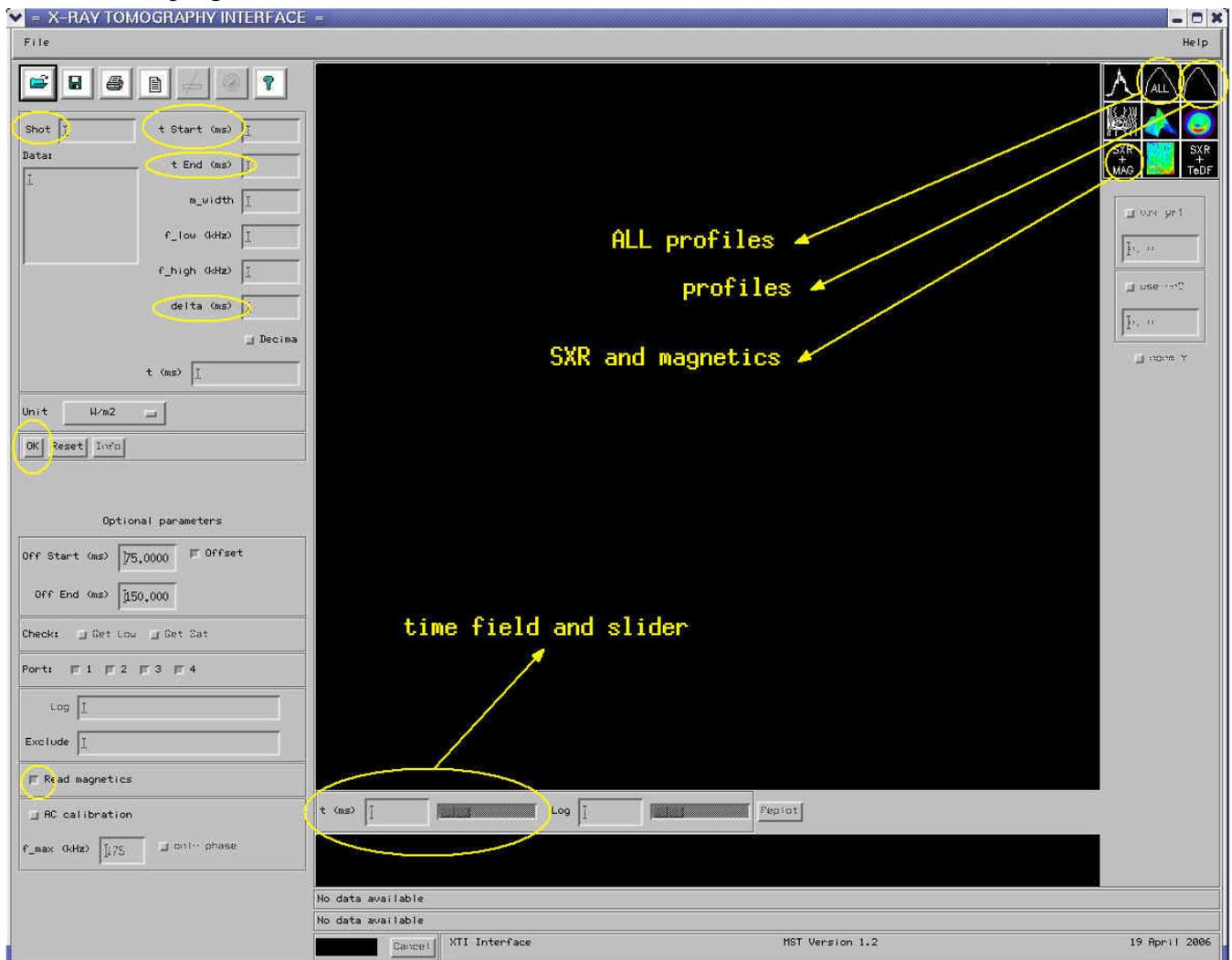**XTI program to view the SXR tomography data**

- The **XTI** program, written in IDL, can be used either on `dave` or `aurora/juno`. In `dave` log on with username *tomography*; in `aurora/juno` log on as *mstdata*. Of course, in `aurora/juno` you will see only the shots of a couple of days.
- In `dave` type:
    - o idl
    - o xti, /mst
- In `aurora/juno` type:
    - o fd
    - o idl
    - o xti, /mst
- The main program will start:

- To visualize the SXR data (brightness) for a shot type the following parameters:
    - o 1060418098 in the Shot field
    - o 14 in the t Start (ms) field
    - o 21 in the t End (ms) field
    - o 0.25 in the Delta (ms) field
- Click on the OK button. The raw data will be read, together with the magnetic data (Read magnetics button selected).

- To plot the four SXR profiles click on the **ALL profiles** button in the top-right of the window:
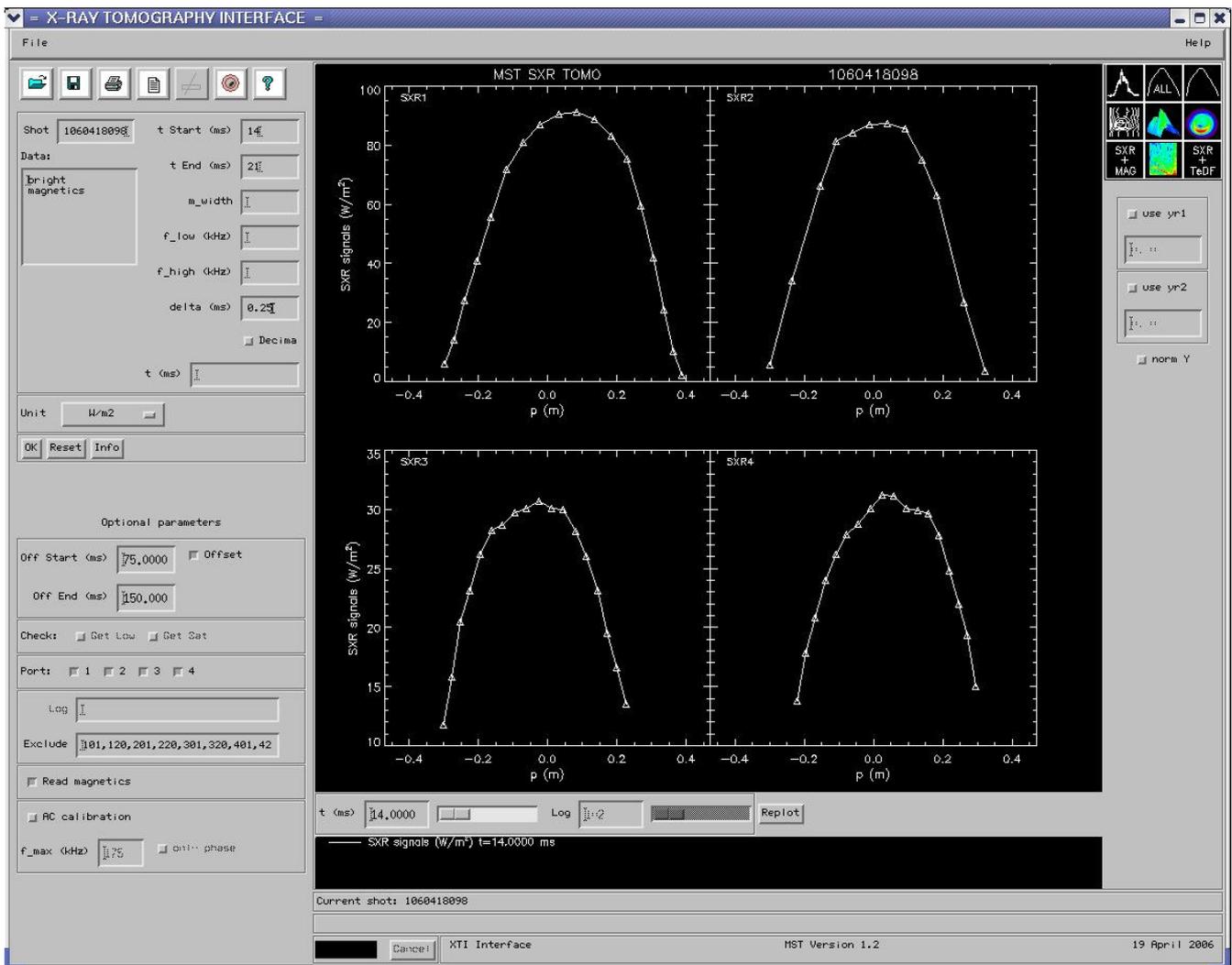
Move the **time slider** on the bottom to plot the profiles for different time or type a value in the **time field**, followed by enter, to plot the profiles for that time (or for the closest time available). In this case the two profiles SXR1 and SXR2 have the same Y scale, while SXR3 and SXR4 have the same scale but different form that of SXR1,SXR2. In fact, SXR1 and SXR2 have 303 microns of Beryllium, while SXR3,SXR4 have 761 microns.

- For this example the data are read in the range 14-21 ms, averaged by 0.25 ms (then the time base will be 14.00, 14.25, 14.50, 14.75, ... ms). In general, using smaller **Delta** will give signals with higher fluctuations (and noise); using **Delta** of 0.2 or 0.5 ms will give smoother signals and profiles, but will cancel also the m=1 rotating structure. The sampling frequency is 500kHz, bandwidth of the electronics is about 100kHz. The raw data are in W/m^2; amplifier gains, geometrical factors (solid angles of the lines of sight) etc. are all automatically calculated and included in the calculations.

- To plot the SXR and magnetic data (toroidal measurements) click on the SXR and magnetics
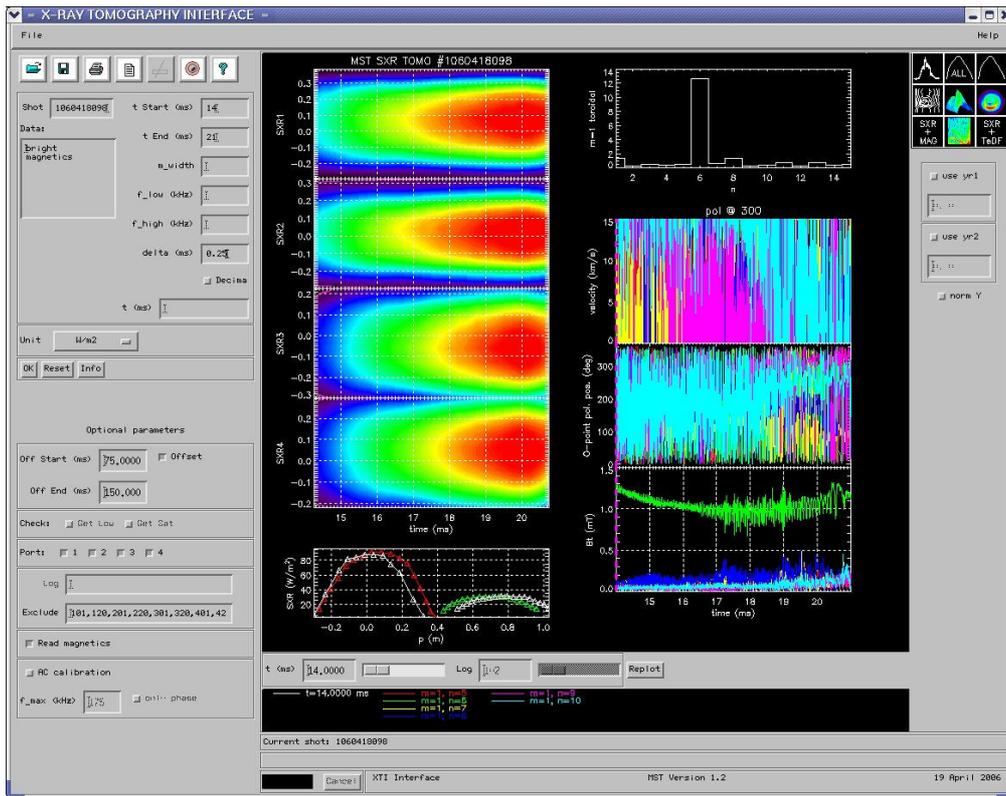
button:
You can select the time for the SXR profiles using the time slider or field but you can also select a time in the Bt (mT) plot (bottom-right) by clicking with the mouse (left button). You can also zoom
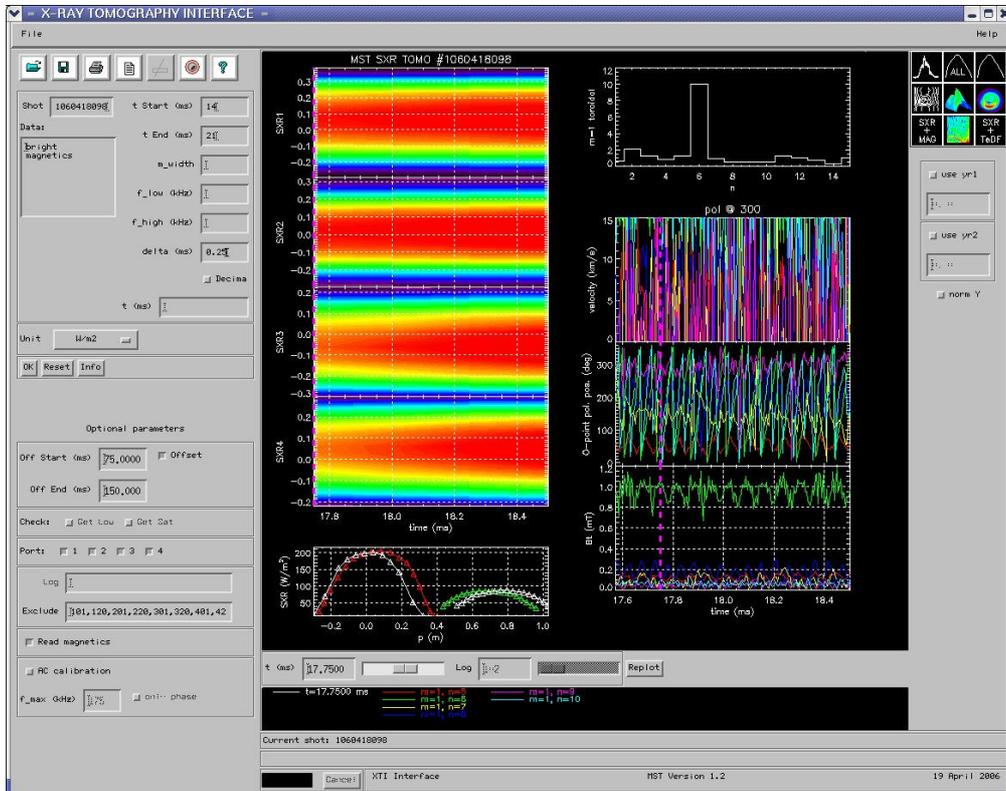
by selecting a region in the same plot:

To replot click on the Replot button or click in any point with the right button of the mouse. In this plot the following signals are plotted:

- o left column, top to bottom: the four contour plot of the four SXR cameras (X axis=time, Y axis=radius) and the SXR profiles for the selected time (see the field time), on the left SXR1 (red) and SXR2 (white), on the right SXR3 (green) and SXR4 (white).
- o right column, top to bottom: the m=1 spectrum in the selected time, mode velocity, poloidal position of the mode at the toroidal position of the tomography and the mode amplitude as a function of time. For these three graphs the various n number are color coded (see the legend in the small window below the main plot window).