PIV_Tool Manual

Open the file *PIV_tool20.m* in MatLab: the window displayed in figure 1 pops up. Clicking on *File/Open*, it is possible to read tiff images. On the top-right, it is possible to select the interrogation window size in x- and y- directions (WSX and WSY respectively).

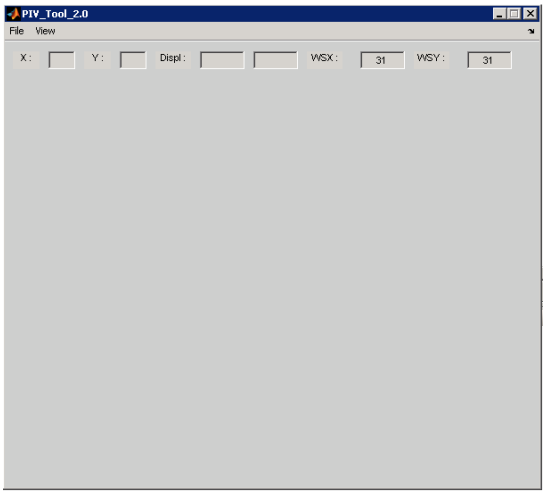

Figure 1. PIV_tool starting window.

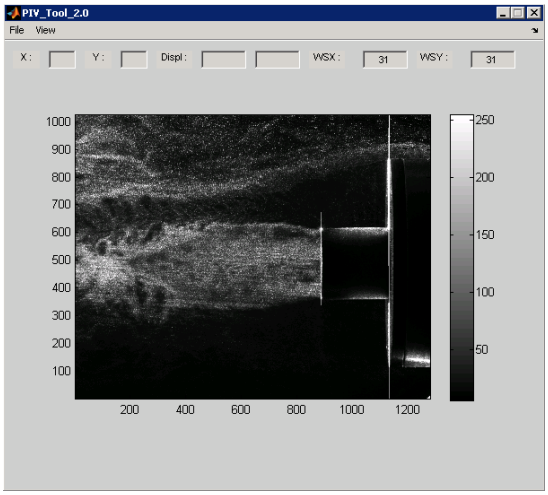

Figure 2. Image read with PIV_Tool.

Moving the mouse on the image, the interrogation window and the cross-correlation function are displayed in a second window (figure 3).

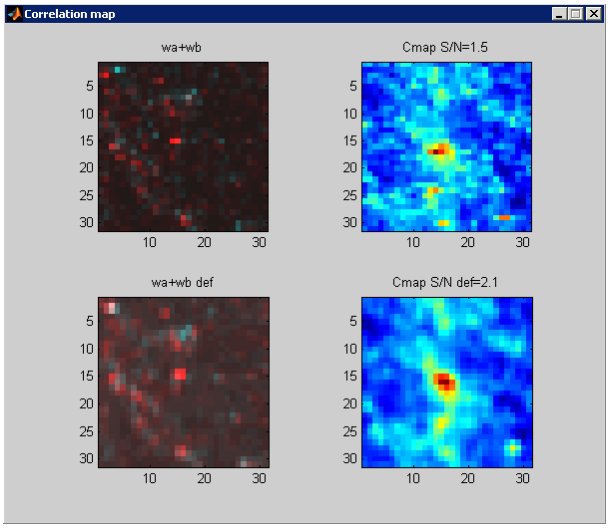

Figure 3. Interrogation windows and correlation functions before (top line) and after (bottom line) window deformation.

The image on the top-left is the superposition of the interrogation windows wa and wb of the two images. The image on the top right is the correlation function computed via cross-correlation of the two windows; above this image, the signal to noise ratio S/N is indicated. The two images on the bottom are the interrogation windows and the correlation map at the second iteration, where the interrogation windows have been displaced and deformed based on the result of the first iteration in order to enhance the robustness of the result. Typically, the signal-to-noise ratio after window deformation (second iteration) is larger than the one at the first iterations.

Clicking on the tif image, the location of the interrogation window and the measured particle image displacement (x- and y- components) are displayed at the top of the figure. Furthermore, the corresponding displacement vector is shown. The vector is displayed in green if $S/N \geq 2$, in yellow if $1.5 \leq S/N < 2$ and in red if $S/N < 1.5$ (figure 4).

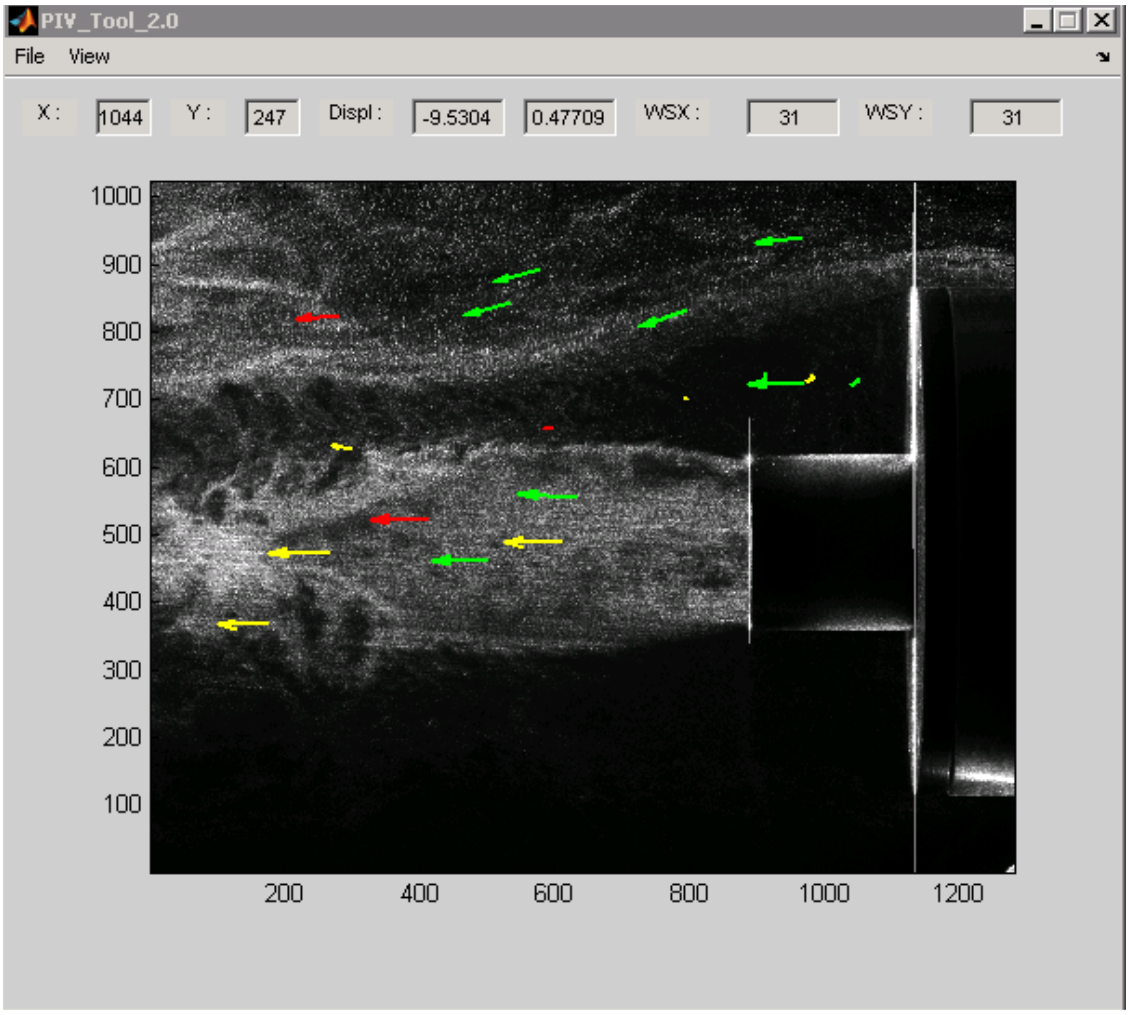

Figure 4. Raw image with vectors.