METHODS FOR STEREOPIV ANALYSIS IN *INSIGHT 3G*™ SOFTWARE

Obtaining StereoPIV data involves two steps: cross-correlation and dewarping-interpolation. The order in which these steps are performed can be manipulated in the *INSIGHT 3G*™ software, as designated to be Methods 1 and 2. The procedures given below describe the two methods.

Method 1: Perform the cross-correlation, then dewarp and interpolate the resulting vector fields.

Method 2: Dewarp the images, perform the cross-correlation, and then interpolate the resulting vector fields.

Method 1: This is the "Default" method outlined in the *INSIGHT 3G*™ software manual. Please refer to the manual for the exact procedure. An outline of this procedure is given below. Assuming the Stereo calibration is already complete, the data is analyzed in the following way.

1. In the "Process Setup" box, the PIV parameters are set, and in the 3D Stereo Calibration field, the standard calibration is chosen (i.e., runname.PIVPerCal). In the example below, the Run Name is "stertest":
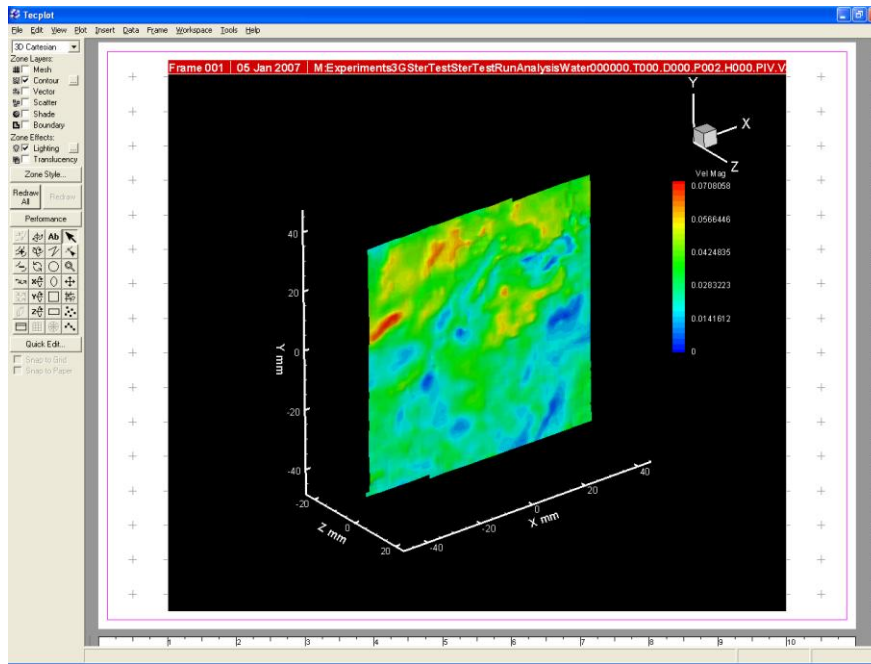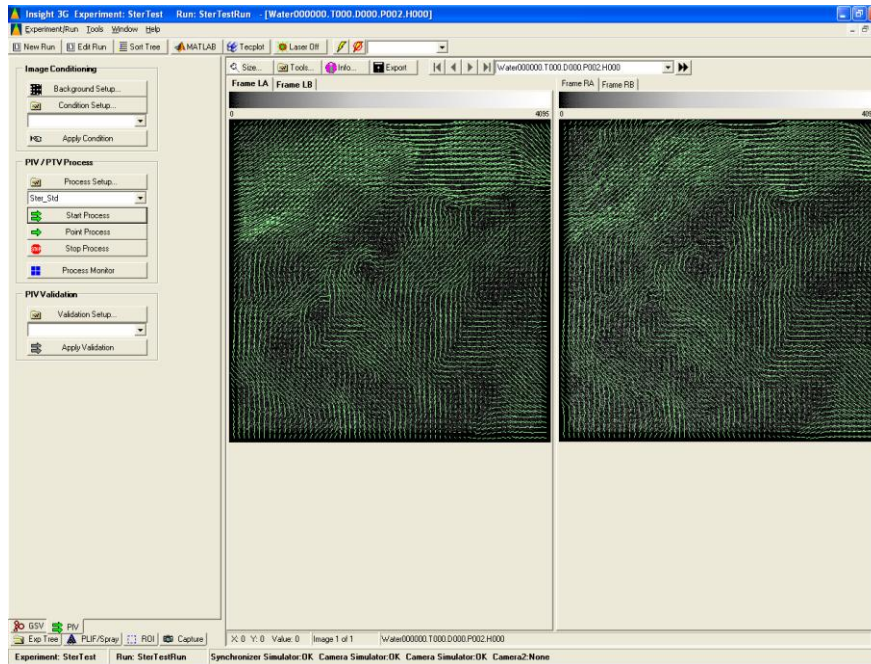

2. Load the images that are to be processed into the active field, and press "**Start Process**."

3. The vector fields are generated on each of the raw images, and then the vectors are dewarped and interpolated to generate the 3D velocity field.

Method 2: This method requires that the images are dewarped prior to the correlation. Assuming the calibration is already complete; to perform this method, follow the steps below:

1. On the "PIV" tab, click on "**Conditions Setup**."
2. Under "Realization Conditioner," select the "**DewarpImageProcessor**."
3. Under "Camera Left," click the "**Frame A**" button.
4. Select the standard calibration.
5. Select the same calibration file for LB, RA, and RB.
6. You will be prompted to name this conditioner.
7. When finished, click "**Close**."
8. Load the images you want to process into the active field.
9. With the name of the Dewarping Processor in the "Image Conditioning" field, click "**Apply Condition**."
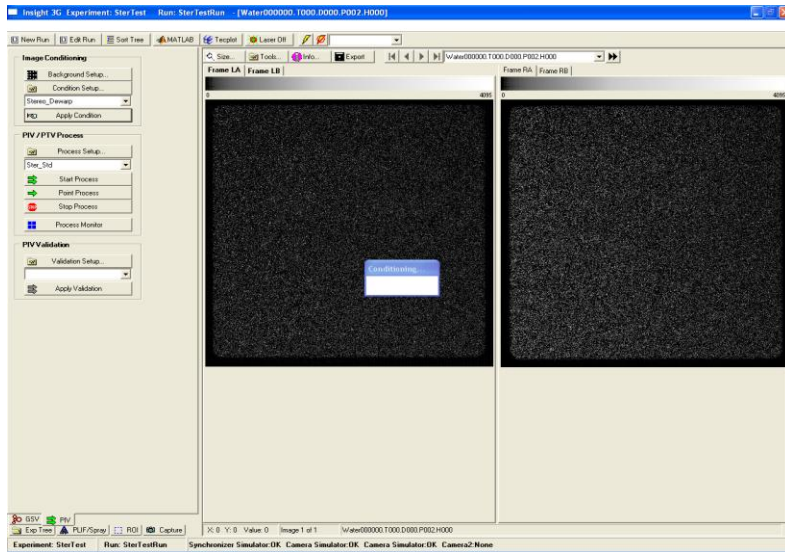
10. The images will be dewarped according to the calibration.

11. Now go to the "Process Setup" box. This time, under the 3D Stereo Calibration field, select the "**dewarp_runname.PIVPerCal**." In the example below, this is "dewarp_stertest."
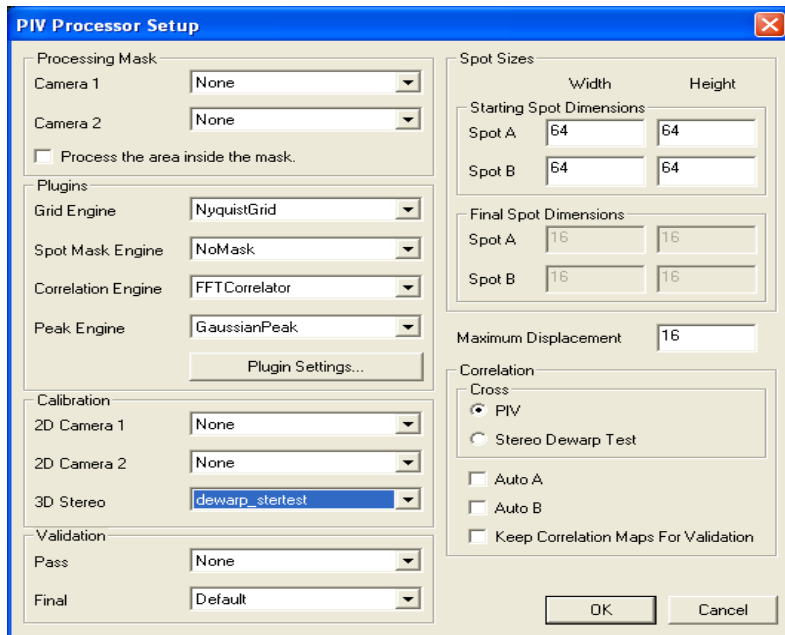
12. Click **OK**.

13. Press the "**Start Process**" button to perform the data analysis on the dewarped images.

14. The cross-correlation is performed on the dewarped images and the resulting vector fields are interpolated based upon the calibration.
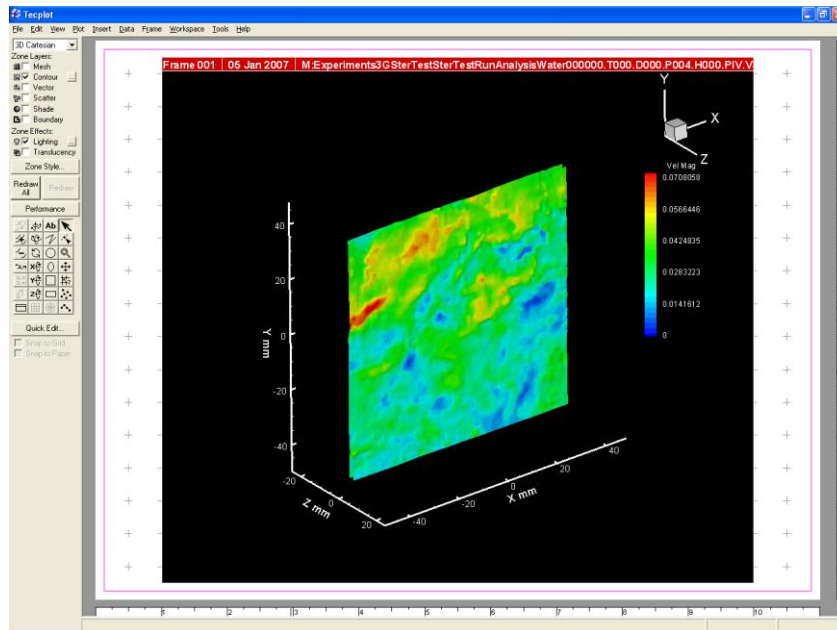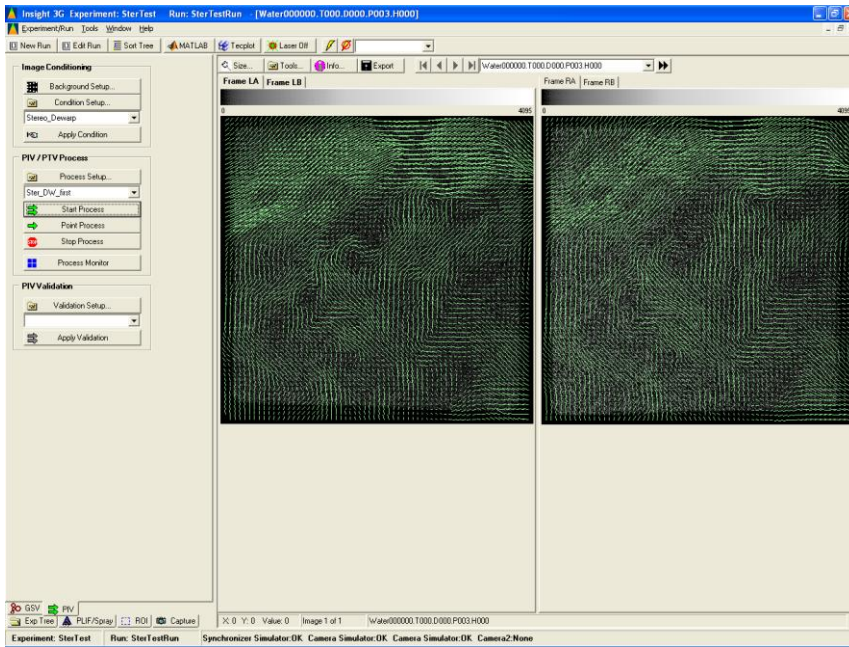
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