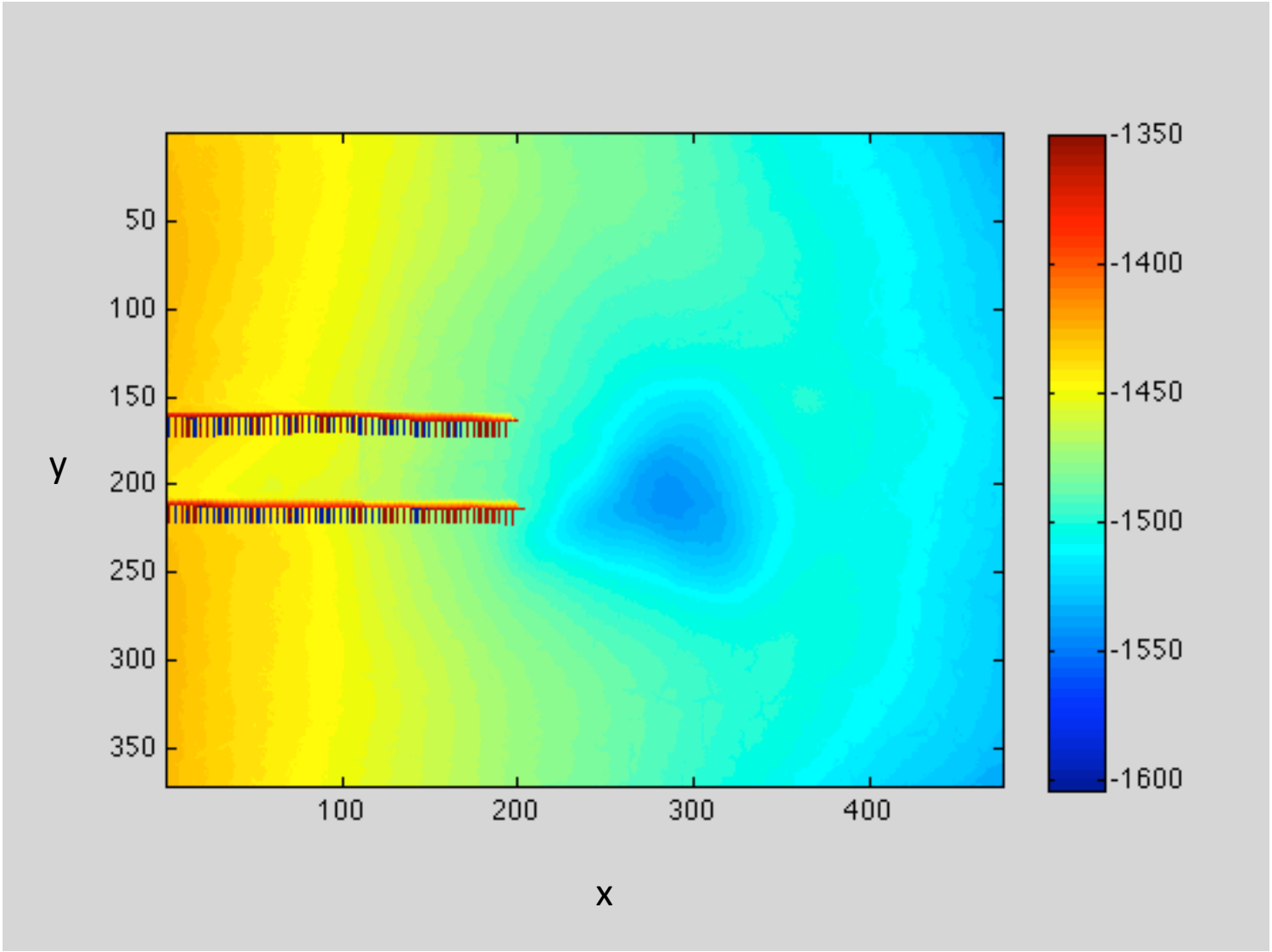
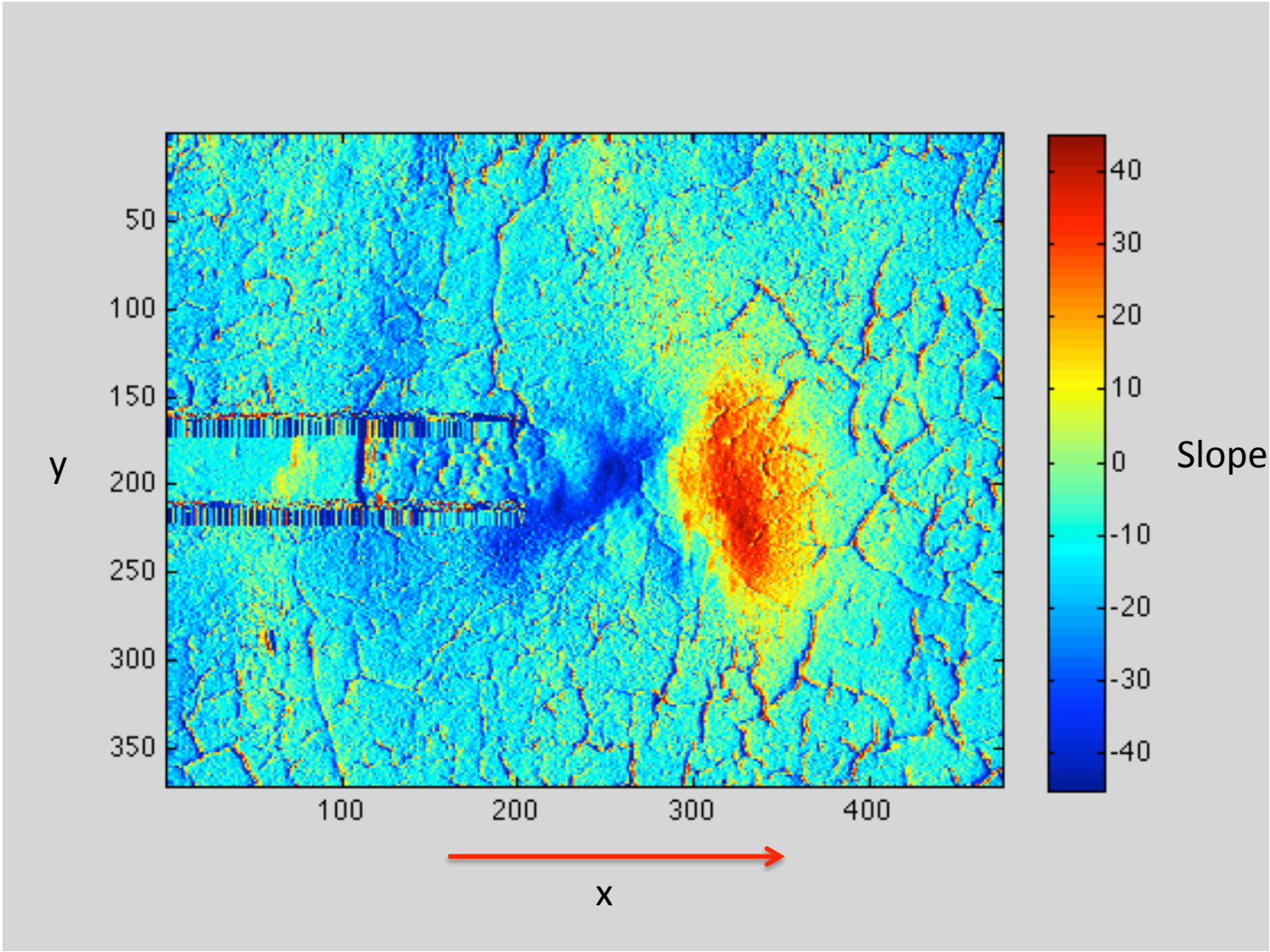
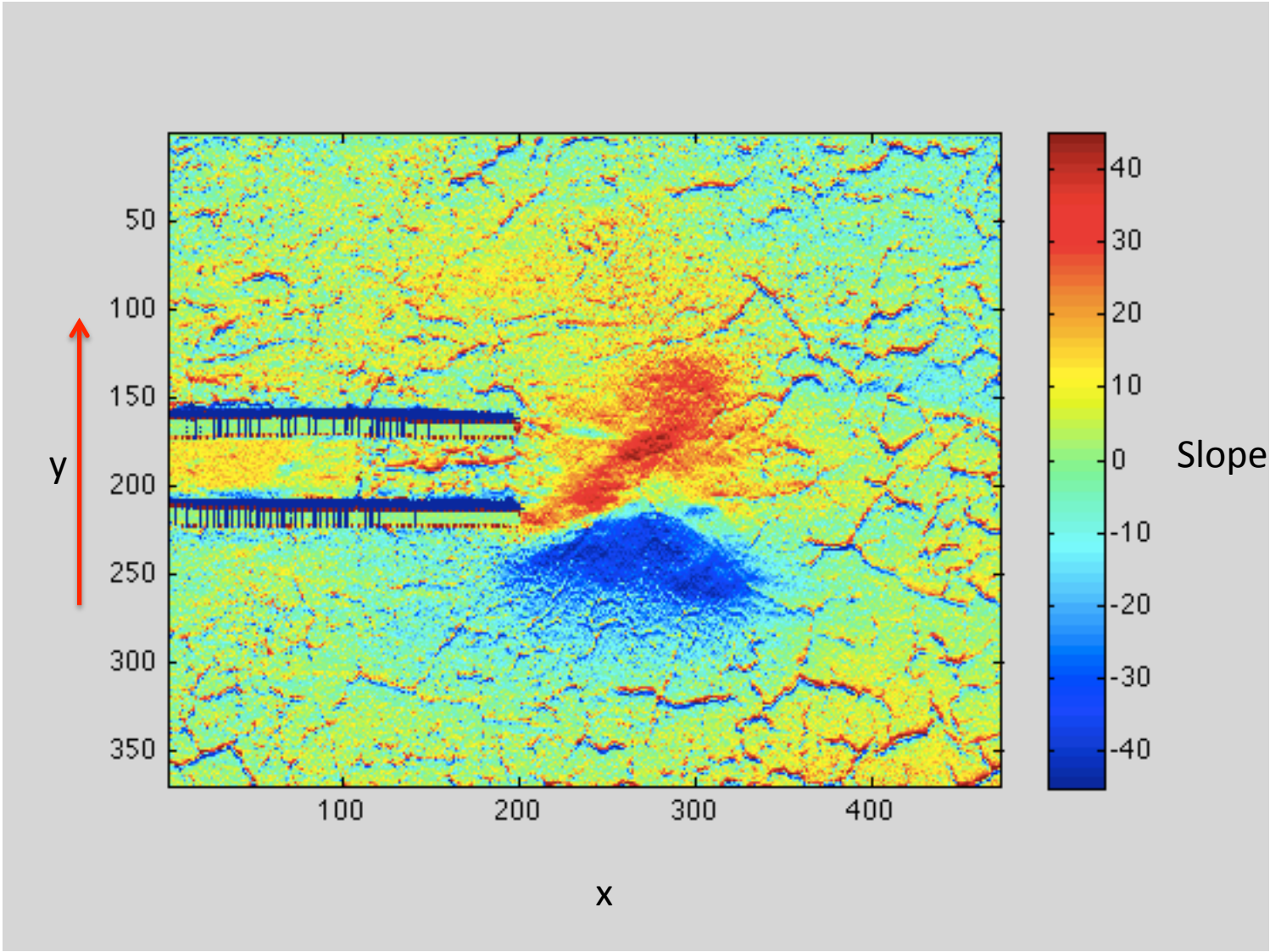
Original surface – bowl shaped (red=shallow, blue=deep)



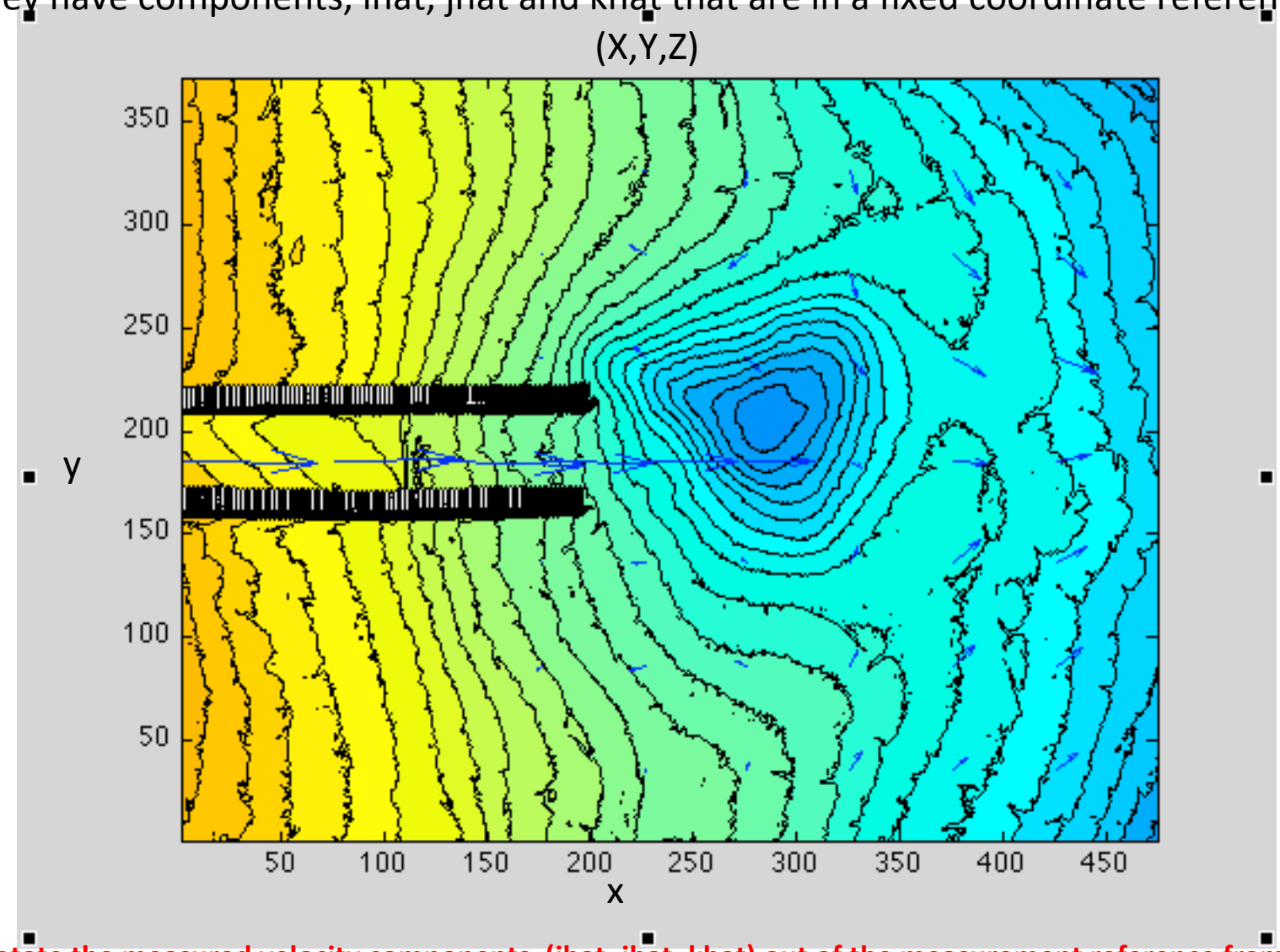
Slope in x-direction calculated from original surface z-data (theta_x)



Slope in y-direction calculated from original surface z-data (theta_y)



Velocity distribution of a current measuring equipment. Vectors here are the P's in the diagram I sent. They have components, ihat, jhat and khat that are in a fixed coordinate reference frame (X,Y,Z)



Problem: rotate the measured velocity components (ihat, jhat, khat) out of the measurement reference frame to a plane that is normal to the surface on slide 1 (ihat', jhat', khat') using the slope data from the two previous maps. Because component magnitudes conserve, the resultant vectors remain the same as shown above.