



## Assessing errors in tank levels and other physical measurements using FLIR Tools and ResearchIR

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FLIR Tools and ResearchIR allow the easy export of temperature data to Microsoft Excel. Lines and boxes can be used to generate one- and three-dimensional plots to assist in diagnosis and visualization. This presentation will explain a couple of methods for determining physical measurements (height, width, area) via Excel as well as identify possible errors in measurements, such as tank levels. The precise measurement of levels in tanks is generally done mechanically (gauging) or via radar. An infrared camera can be a useful tool for determining changes in tank levels, but this paper will illustrate that the uncertainties generated may be unacceptable. Both FLIR Tools and ResearchIR will be shown to generate the same result but approaching the task somewhat differently.

### **Keywords**

Distance, FLIR Tools, focal length, geometry, Microsoft Excel, lens selection, pixel pitch, pixel size, pixel smoothing, ResearchIR, spatial calibration, tank levels, tanks, trigonometry