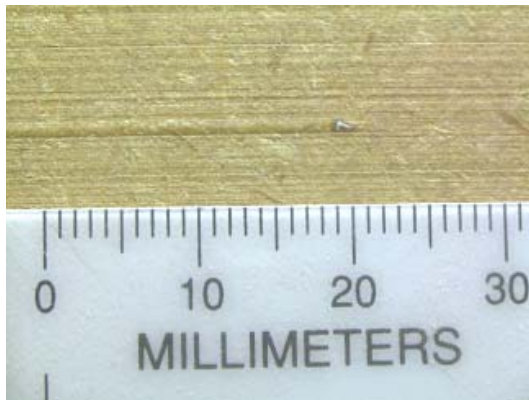


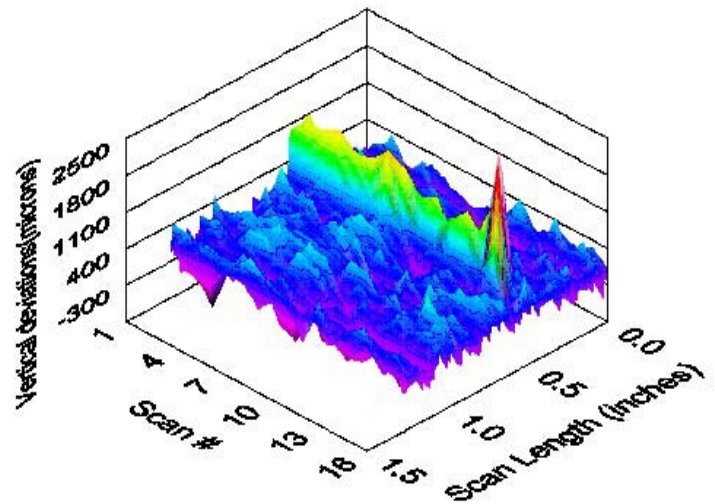
WOOD MACHINING & TOOLING RESEARCH

SURFACE QUALITY RESEARCH - 3-D SURFACE ASSESSMENT

The directional nature of wood is a major problem in the assessment of quality for machined surfaces. The orientation of the wood grain and machining marks can cause distinct features to be present on the surface that have a specific directionality. WMTRP research has shown that much more information can be gleaned from a three dimensional (3-D) analysis of a surface as opposed to a standard single 2-D surface trace that is most often performed. The figure below shows the directional and three-dimensional nature of a sanded surface with a foreign body (the tall spike) that subsequently causes a sanding ridge to form where the abrasive grits have been damaged. Such a feature is clearly a surface defect that a 2-D trace could easily miss, but one that is easily seen and assessed for severity and source of defect in a 3-D analysis. The WMTRP has developed and tested hardware and software to perform this analysis.



Foreign Particle in Particleboard



3-D Trace of Ridge and Particle

The Wood Machining & Tooling Research Program (WMTRP) is a multidisciplinary program involving the fields of Mechanical Engineering, Industrial Engineering, Manufacturing Engineering, Material Science, and Wood Science. The program mission is to provide the woodworking industry with personnel educated in machining and tooling technology and provide applied research results aimed at improving efficiency and wood utilization. Major program support is provided by the U.S. Department of Agriculture.

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