

SPACELAB-D2. STACO EXPERIMENT (1993)

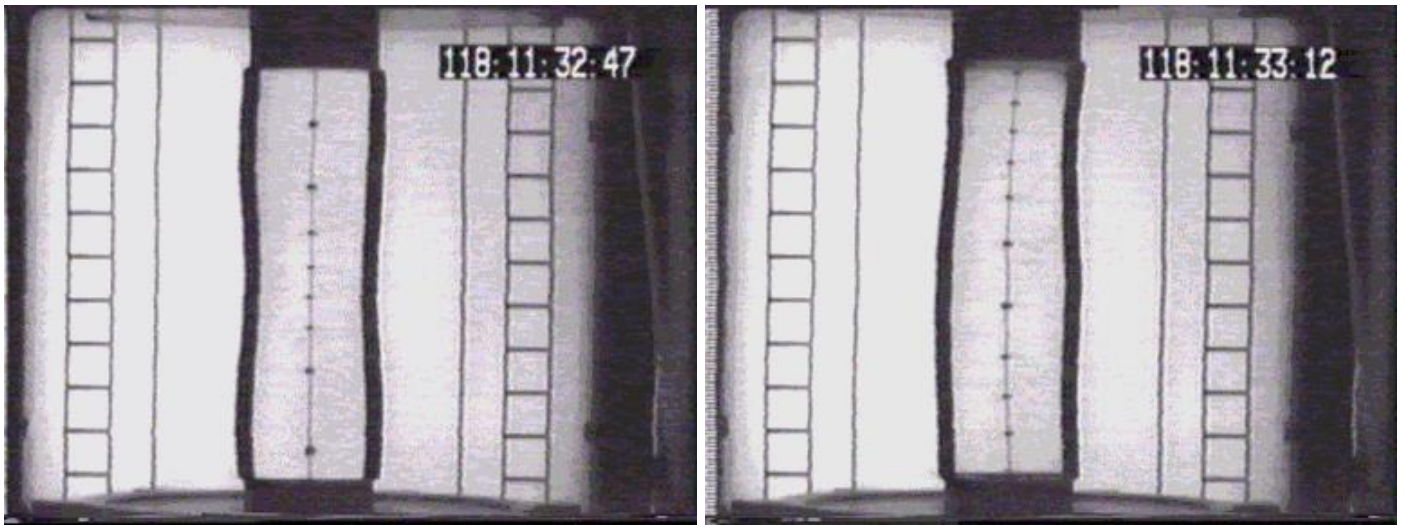


Fig. 1. Two frames in a cycle of forced oscillations of the upper disc during run 1 of experiment STACO aboard Spacelab-D2 (mission elapsed time tagged) A background raster with squares of 10 mm was used to enhance the image analysis. The liquid is a silicone-oil 10 times more viscous than water. Because of its transparency and refractive index jump, the distorted image of the regular background ruling in the central axis gives an idea of the non-cylindricity of the interface. The two solid supports are made of aluminium, of 30 mm in diameter, with a sharp cut-back (30° edge) to prevent liquid spreading over the edges, and they are 85 mm apart (note that more than 9 background-centimetres can be measured because of parallax).

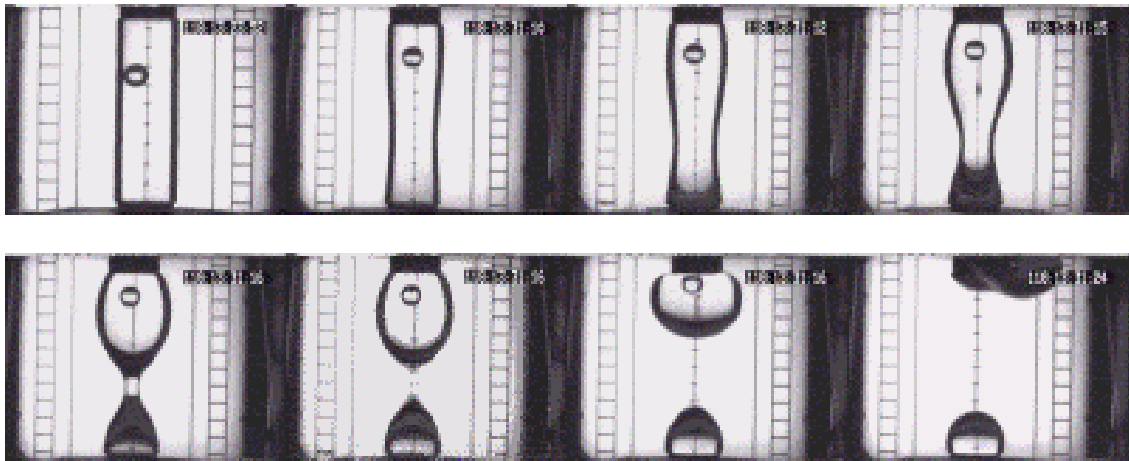


Fig. 2. Breakage of a long liquid bridge by quasi-static disc separation during run 2 of experiment STACO aboard Spacelab-D2 (mission elapsed time tagged) A background raster with squares of 10 mm was used to enhance the image analysis. The liquid is a silicone-oil 10 times more viscous than water. Because of its transparency and refractive index jump, the distorted image of the regular background ruling in the central axis gives an idea of the non-cylindricity of the interface. The two solid supports are made of aluminium, of 30 mm in diameter, with a sharp cut-back (30° edge) to prevent liquid spreading over the edges, and they are 85 mm apart (note that more than 9 background-centimetres can be measured because of parallax).

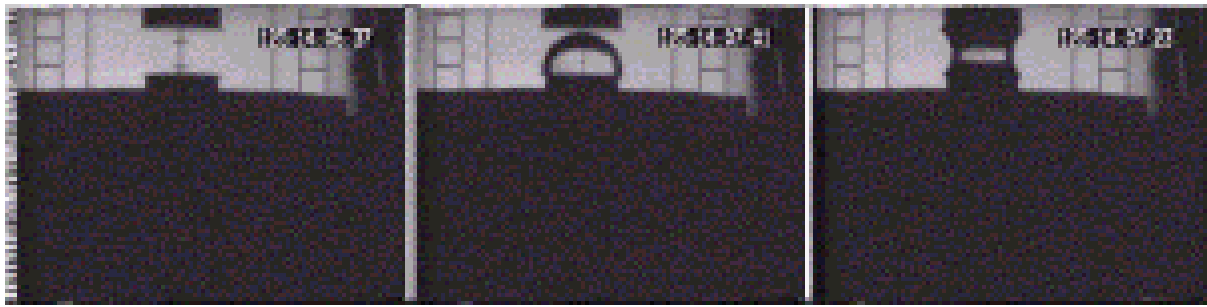


Fig. 3. Initial phase in the formation of the liquid bridge: a) disc separation without liquid injection, b) liquid injection through a hole in one disc, c) contact, spreading and anchoring of the liquid edges to the other disc.



Fig. 4. Ulrich Walter during AFPM operations aboard Spacelab-D2 (1993).

[References \(see Publications\).](#)