Experimental data on the reaction kinetics of catalytic processes are prerequisite for modeling of such reactions and their output. We investigate the CO oxidation on some noble metal catalysts, like Iridium(111) and Palladium(111) which is a bistable surface reaction. In a specific range of CO content in the feed gas islands of one or the other adsorbate nucleate and grow, which is recorded with photo electron emission microscopy (PEEM). During these transients the coverage on the surface changes from predominantly oxygen covered to predominantly CO covered resp. vice versa. But the resolution of PEEM and especially its unknown and nonlinear dependence of coverage of the two adsorbates (oxygen and CO) and image intensity make it impossible to extract the changes in coverage. On the other hand the reaction diffusion model based on the Langmuir-Hinshelwood-mechanism delivers the coverage of oxygen and carbon monoxide. The shape and wall velocity of those islands has been connected perfectly to each other [CPL 423 (2006) 39], but not the absolute coverage and their variation during the reaction. Since the domain wall velocity is small on Iridium(111), this has opened the possibility for a detailed analysis of the changing coverage inside this domain wall utilizing synchrotron radiation and photo electron spectroscopy at BESSY II. The coverage profile of oxygen and CO inside a moving domain wall was measured for both cases using XPS spectra at O1s, C1s and the valence band during the reaction. Comparison with the reaction-diffusion-model and other catalytic surfaces, like Palladium(111) are done.