Function spaces of intersection type with different scales of time regularities, like Bessel potential, Besov and Triebel-Lizorkin regularity, arise naturally in the maximal L^p-L^q approach to linearizations of free boundary problems. To allow for flexibility for the initial regularity one further introduces temporal weights. For a large class of these weighted spaces the temporal trace space is determined. The main tools are new Sobolev embeddings for weighted Triebel-Lizorkin spaces which are independent of the microscopic parameter q. This effect further allows to prove mixed derivative type
embeddings with microscopic smoothing. The results are applied to prove maximal L^p-L^q regularity for the fully inhomogeneous transformed and linearized two-phase Stefan problem with Gibbs-Thomson correction.

This is joint work with Mark Veraar (Delft).