

Abstract Submitted
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Clear salt water above sediment-laden fresh water: Interfacial instabilities NATHAN KONOPLIV, BARTHO SCHULTE, ECKART MEIBURG, Univ of California - Santa Barbara — The stability of an interface separating less dense, clear salt water above from more dense, sediment-laden fresh water below is explored via direct numerical simulations. We find that the destabilizing effects of double-diffusion and particle settling amplify each other above the diffusive interface, whereas they tend to cancel each other below. For moderate settling velocities, plumes form both above and below the interface, whereas for large settling velocities plume formation below the interface is suppressed. We identify the dimensionless parameter that determines in which regime a given flow takes place, along with the critical value at which the transition between the regimes takes place.

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