

Table 2. Summary of Key Predictions, Successes and Failures, Relative to the Observational Findings of This Study, of the Theoretical Descriptions of Eddy Stirring Under Consideration

| Theoretical Description | Key Predictions | Successes | Failures |
|---------------------------------------------|----------------------------------------------------------------|--------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|
| Quasi-homogeneous turbulence | L_{mix} proportional to eddy size | κ proportional to EKE | None |
| Linear waves | L_{mix} and κ enhanced at Rossby wave critical layers | L_{mix} and κ generally elevated at jet flanks relative to jet cores | No evidence of L_{mix} and κ enhancement at jet flanks relative to off-jet regions |
| Weakly nonlinear waves | L_{mix} and κ reduced by mean flow | L_{mix} and κ generally reduced in jets relative to surroundings | Three jets with high L_{mix} and κ |
| Eddy interaction with nonparallel mean flow | L_{mix} and κ not reduced by mean flow | Three jets with high L_{mix} and κ show some evidence of nonparallel conditions | SAF jet near South America shows nonparallel conditions yet reduced L_{mix} and κ |
| Near-boundary turbulent suppression | L_{mix} and κ reduced close to a solid boundary | SAF jet near South America shows nonparallel conditions yet reduced L_{mix} and κ | None |