Table 2.3 Flow-Pattern Maps for Vertical Upward Two-Phase Flow Systems Based on Generalized Coordinate Parameters

Author	Fluids	Pipe Diameter	Coordinate Parameters
Kosterin (1949)	Air-Water	1 in.	β, j
Kozlov (1954)	Air-Water	1 in.	β, $j^2/gD)^{1/2}$
Galegar et al. (1954)	Air-Water, -Kerosene	0.5 & 2 in.	G_g, G_f
Ueda (1958)	Air-Water	2 in.	W_g, W_f
Hewitt & Roberts (1969)	Air-Water	1.25 in.	$\rho_f j_f^2$, $\rho_g j_g^2$
Nishigawa et al. (1969)	Air-Water	1 in.	j_f, j_g
Govier & Aziz (1972)	Air-Water	Data from Others	Yj_f, Xj_g
Oshinowa & Charles (1974)	Natural Gas-Oil		$(\beta/1-\beta)^{1/2}$, $Fr_{TP}/\text{Æ}$
Spedding & Nguyen (1980)	Air-Water	4.55 mm	$j/(gD)^{1/2}$, j_f/j_g
Weisman & Kang (1981)	Freon-113 Vapor-Liquid	1 in.	$j_g/\Phi 1$, $j_f/\Phi 2$