

---

Manuscript # JFM-17-S-1209 :

**From a steady plume to periodic puffs during confined carbon dioxide dissolution.**

Supplementary Materials

---

	$h$	1	2	3	4	5	6
Bo=2.2	$\varpi$	5422	5319	5319	5077	5077	5077
	$k$		1.7952	1.3963	1.6755	1.5708	1.3228
	$w_\phi$		2963	3810	3030	3232	3838
	$\tilde{t}_i$	0.0033	0.0048	0.0089	0.0136	0.0212	
	$h$	1	2	3	4	5	6
Bo=3.4	$\varpi$	5133	5321	5523	5386	5289	5257
	$k$		1.3659	1.1636	1.3659	1.4960	1.5708
	$w_\phi$		3896	4747	3944	3535	3347
	$\tilde{t}_i$	0.0023	0.0079	0.0102	0.0134	0.0219	0.0219
	$h$	1	2	3	4	5	6
Bo=4.8	$\varpi$		5236	5712	5236	5236	5236
	$k$		1.5080	1.2566	1.3464	1.3464	
	$w_\phi$		3472	4545	3889	3889	
	$\tilde{t}_i$	0.0039	0.0062	0.0076	0.0168	0.0180	0.0180
	$h$	1	2	3	4		
Bo=8.6	$\varpi$	5195	4964	4964	4468		
	$k$		2.1855	1.7333	1.4362		
	$w_\phi$		2272	2864	3111		
	$\tilde{t}_i$	0.0061	0.0048	0.0124	0.0115		

TABLE 1 – Values of the frequency  $\varpi$ , the wavenumber  $k$ , the phase velocity  $w_\phi$  and the rescaled onset time  $\tilde{t}_i = (1 + Bo^{-1})^{-3.5}t_i$  as a function of the aspect ratio  $h$  obtained for  $Ra = 10^6$ .

$10^{-6}Ra$	0.3965	0.4406	0.4700	0.5875	0.7343	0.9987	1.4686
$\varpi$	2539	2864	3191	3603	4296	5422	6981
$k$	1.9040	1.7952	2.2241	1.6755	1.7952	1.3963	1.3963
$w_\phi$	1333	1595	1435	2151	2393	3883	5000
$\tilde{t}_i$	0.0167	0.0142	0.0136	0.0121	0.0109	0.0089	0.0076

TABLE 2 – Values of the frequency  $\varpi$ , the wavenumber  $k$ , the phase velocity  $w_\phi$  and the rescaled onset time  $\tilde{t}_i = (1 + Bo^{-1})^{-3.5}t_i$  as a function of the Rayleigh number obtained for  $h = 3$  and  $Bo = 2.2$ .

---

$10^{-6}Ra$	0.2962	0.5332	1.0071	1.4810	2.2215
$\varpi$	2238	3293	5523	6233	9284
$k$	1.4960	1.4960	1.1636	1.1220	1.0472
$w_\phi$	1496	2201	4747	5556	8865
$\tilde{t}_i$	0.0219	0.0161	0.0102	0.0093	0.0073

---

TABLE 3 – Values of the frequency  $\varpi$ , the wavenumber  $k$ , the phase velocity  $w_\phi$  and the rescaled onset time  $\tilde{t}_i = (1 + Bo^{-1})^{-3.5}t_i$  as a function of the Rayleigh number obtained for  $h = 3$  and  $Bo = 3.4$ .

---

$10^{-6}Ra$	0.3327	0.4299	0.5118	0.6398	0.9981	1.0237	1.5355	2.1497
$\varpi$	2618	2732	3222	3396	5712	5845	6981	10472
$k$	1.3963	1.3963	1.3963	1.1781	1.1424	1.5080	1.8850	1.3963
$w_\phi$	1875	1957	2308	2883	5000	3876	3704	7500
$\tilde{t}_i$	0.0155	0.0129	0.0129	0.0103	0.0075	0.0077	0.0077	0.0059

---

TABLE 4 – Values of the frequency  $\varpi$ , the wavenumber  $k$ , the phase velocity  $w_\phi$  and the rescaled onset time  $\tilde{t}_i = (1 + Bo^{-1})^{-3.5}t_i$  as a function of the Rayleigh number obtained for  $h = 3$  and  $Bo = 4.8$ .

---

$10^{-6}Ra$	0.5459	1.0070	1.6985	2.5478
$\varpi$	2793	4964	6770	11170
$k$		1.7333	1.8617	2.0944
$w_\phi$		2864	3636	5333
$\tilde{t}_i$	0.0153	0.0124	0.0086	0.0042

---

TABLE 5 – Values of the frequency  $\varpi$ , the wavenumber  $k$ , the phase velocity  $w_\phi$  and the rescaled onset time  $\tilde{t}_i = (1 + Bo^{-1})^{-3.5}t_i$  as a function of the Rayleigh number obtained for  $h = 3$  and  $Bo = 8.6$ .