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| **Table 1.** Time frames defining the end-member meteorologic and oceanographic forcing periods. | | | |
|  | WIND | TIDE/CALM | WAVE |
| Year Day (YD) 2014 | 47-49 | 50-51 | 52-55 |
| Gregorian Day (Local) | 2/15-2/17 | 2/18-2/19 | 2/20-2/23 |
| ADCP mean speeds at AS1, AS2, AS3 (cm s-1) | 11.6, 3.9, 1.5 | 14.6, 5.3, 0.9 | 18.1, 10.9, 1.2 |
| ADCP mean speed and STD for end member (cm s-1) | 5.7 ± 4.3 | 6.9 ± 5.7 | 10.1 ± 6.9 |
| Drifters speed min - max (cm s-1) | 1-37 | 1-37 | 5-64 |
| Drifter mean speed and STD for end member (cm s-1) | 6.9 ± 5.4 | 8.7 ± 6.0 | 12.9 ± 7.2 |
| Drifters number of samples (n) | 347 | 411 | 208 |

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| **Table 1.** Time frames defining the end-member meteorologic and oceanographic forcing periods. | | | |
|  | WIND | TIDE/CALM | WAVE |
| Year Day (YD) 2014 | 47-50 | 51-52 | 52-54 |
| Gregorian Day (Local) | 2/16-2/18 | 2/19-2/20 | 2/21-2/23 |
| ADCP mean speeds at AS1, AS2, AS3 (cm s-1) | 14.9, 6.8, 0.4 | 12.5, 3.7, 0.7 | 21.5, 11, 1.2 |
| ADCP mean speed and STD for end member (cm s-1) | 7.4 ± 7.3 | 5.6 ± 6.1 | 11.2 ± 10.1 |
| Drifters average speed min - max (cm s-1) | 1-20 | 1-19 | 1-36 |
| Drifter mean speed and STD for end member (cm s-1) | 8 ± 6.5 | 7.1 ± 5.8 | 12.3 ± 8.1 |
| Drifters number of samples (n) | 1,314 | 1,580 | 2,461 |

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| **Table 2**. Mean flow speed and residence time computed from ADCPs and corresponding spatially binned drifter data for different forcing conditions. | | | | | | | | | | | | |
| End member |  | NORTH | |  | CENTRAL | |  | SOUTH | | DIFFERENCE | | |
|  | Speed | Res. Time |  | Speed | Res. Time |  | Speed | Res. Time |  | Speed | Res. Time |
|  | (cm s-1) | (h) |  | (cm s-1) | (h) |  | (cm s-1) | (h) |  | (cm s-1) | (h) |
|  | AS3 | - | - | AS2 | 5.0 | 0.55 | AS1 | 9.9 | 0.28 |  |  |  |
| TIDE | Drifters | 3.0 | 1.10 | Drifters | 6.0 | 0.47 | Drifters | 17.0 | 0.16 |  |  |  |
|  | *RSD* | *-* | *-* | *RSD* | *1.0* | *0.08* | *RSD* | *7.1* | *0.12* | *RMSD* | *4.0* | *0.10* |
| *% diff* | *43* | *27* |
|  | AS3 | 1.9 | 1.45 | AS2 | 5.3 | 0.52 | AS1 | 12.1 | 0.23 |  |  |  |
| WIND | Drifters | 2.0 | 1.27 | Drifters | 14.0 | 0.20 | Drifters | 8.0 | 0.34 |  |  |  |
|  | *RSD* | *0.1* | *0.18* | *RSD* | *8.7* | *0.32* | *RSD* | *4.1* | *0.11* | *RMSD* | *4.3* | *0.20* |
| *% diff* | *60* | *30* |
|  | AS3 | 0.7 | 4.26 | AS2 | 9.3 | 0.30 | AS1 | 17.2 | 0.16 |  |  |  |
| WAVE | Drifters | 7.0 | 0.41 | Drifters | 20.0 | 0.14 | Drifters | 36.0 | 0.08 |  |  |  |
|  | *RSD* | *6.3* | *3.85* | *RSD* | *10.7* | *0.16* | *RSD* | *18.8* | *0.08* | *RMSD* | *11.9* | *1.37* |
| *% diff* | *79* | *153* |
|  | *RMSD* | 3.2 | 2.0 | *RMSD* | 6.8 | 0.19 | *RMSD* | 10.0 | 0.10 |  |  |  |
| *% diff* | *139* | *136* | *% diff* | *80* | *60* | *% diff* | *70* | *58* |  |  |  |
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| **Table 2**. Mean flow speed and residence time computed from ADCPs and corresponding spatially binned drifter data for different forcing conditions. | | | | | | | | | | | | |
| End member |  | NORTH | |  | CENTRAL | |  | SOUTH | | DIFFERENCE | | |
|  | Speed | Res. Time |  | Speed | Res. Time |  | Speed | Res. Time |  | Speed | Res. Time |
|  | (cm s-1) | (h) |  | (cm s-1) | (h) |  | (cm s-1) | (h) |  | (cm s-1) | (h) |
|  | AS3 | 0.7 | 4.13 | AS2 | 3.7 | 0.76 | AS1 | 12.5 | 0.22 |  |  |  |
| TIDE | Drifters | 3.6 | 0.77 | Drifters | 7.4 | 0.37 | Drifters | 17.9 | 0.16 |  |  |  |
|  | *RSD* | *2.9* | *3.36* | *RSD* | *3.7* | *0.38* | *RSD* | *5.4* | *0.07* | *RMSD* | *4.0* | *1.27* |
| *% diff* | *53* | *119* |
|  | AS3 | 0.4 | 6.94 | AS2 | 6.8 | 0.41 | AS1 | 14.8 | 0.19 |  |  |  |
| WIND | Drifters | 4.0 | 0.70 | Drifters | 14.7 | 0.19 | Drifters | 9.8 | 0.29 |  |  |  |
|  | *RSD* | *3.6* | *6.25* | *RSD* | *7.9* | *0.22* | *RSD* | *5.0* | *0.10* | *RMSD* | *5.5* | *2.19* |
| *% diff* | *66* | *151* |
|  | AS3 | 1.2 | 2.34 | AS2 | 11.0 | 0.25 | AS1 | 21.5 | 0.13 |  |  |  |
| WAVE | Drifters | 8.8 | 0.31 | Drifters | 20.9 | 0.13 | Drifters | 35.7 | 0.08 |  |  |  |
|  | *RSD* | *7.6* | *2.02* | *RSD* | *9.9* | *0.12* | *RSD* | *14.2* | *0.05* | *RMSD* | *11.9* | *0.73* |
| *% diff* | *79* | *135* |
|  | *RMSD* | 5.6 | 4.1 | *RMSD* | 7.2 | 0.24 | *RMSD* | 8.2 | 0.07 |  |  |  |
| *% diff* | *195* | *201* | *% diff* | *78* | *80* | *% diff* | *51* | *48* |  |  |  |
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| **Table A1.** Drifter deployment dates and conditions. Deployments #9-30 coincide with ADCP deployment | | | | | | | | | | |
| Deployment (#) | Year Day 2014 | Start Time | End Time | Tide Start | Tide End | Tide Change | Avg Wind Speed | Wind Gust | Wind Direction | Wave Height |
|  | (local) | (local) | (local) | (m) | (m) | (m) | (m s-1) | (m s-1) | (deg) | (m) |
| 1 | 19 | 1300 | 1500 | 1.5 | 0.3 | -0.17 | 0.6 | 2.0 | 232 | 0.0-0.6 |
| 2 | 20 | 1615 | 1730 | 1.0 | 0.4 | 0.06 | 1.2 | 4.0 | 193 | 0.3-0.6 |
| 3 | 20 | 1750 | 1900 | 1.2 | 0.6 | 0.22 | 1.7 | 5.0 | 258 | 0.3-0.6 |
| 4 | 32 | 900 | 1100 | 3.7 | 0.8 | -0.35 | 2.7 | 6.0 | 96 | 0-0.3 |
| 5 | 32 | 1130 | 1300 | 2.2 | 0.3 | -0.41 | 2.9 | 7.0 | 100 | 0-0.3 |
| 6 | 32 | 1700 | 1900 | 1.5 | 1.0 | 0.52 | 2.2 | 7.0 | 187 | 0-0.3 |
| 7 | 39 | 1415 | 1545 | 3.1 | 1.1 | 0.11 | 2.7 | 9.0 | 140 | 0.6-1.3 |
| 8 | 39 | 1605 | 1800 | 3.3 | 0.8 | -0.24 | 3.1 | 10.0 | 144 | 0.6-1.3 |
| WIND |  |  |  |  |  |  |  |  |  |  |
| 9 | 47 | 1654 | 1846 | 2.4 | 1.0 | 0.26 | 1.7 | 5.0 | 168 | 0.0-0.6 |
| 10 | 48 | 1245 | 1500 | 1.6 | 0.3 | -0.16 | 5.0 | 14.0 | 79 | 0.6-1.3 |
| 11 | 48 | 1530 | 1700 | 1.1 | 0.5 | 0.14 | 3.0 | 10.0 | 101 | 0.6-1.3 |
| 12 | 48 | 1710 | 1840 | 1.6 | 0.8 | 0.29 | 2.7 | 8.0 | 89 | 0.6-1.3 |
| 13 | 49 | 1245 | 1445 | 2.1 | 0.4 | -0.25 | 2.5 | 7.0 | 97 | 0.6-1.3 |
| 14 | 49 | 1445 | 1700 | 1.3 | 0.4 | 0.02 | 2.4 | 8.0 | 194 | 0.6-1.3 |
| TIDE |  |  |  |  |  |  |  |  |  |  |
| 15 | 50 | 1205 | 1440 | 2.9 | 0.5 | -0.42 | 3.0 | 6.0 | 39 | 0.6-1.3 |
| 16 | 50 | 1445 | 1720 | 1.5 | 0.4 | -0.08 | 3.4 | 8.0 | 54 | 0.6-1.3 |
| 17 | 51 | 840 | 1045 | 2.5 | 1.0 | 0.19 | 2.5 | 7.0 | 290 | 0.0-0.6 |
| 18 | 51 | 1100 | 1200 | 3.2 | 0.9 | -0.05 | 2.2 | 6.0 | 117 | 0.0-0.6 |
| 19 | 51 | 1210 | 1430 | 3.0 | 0.6 | -0.29 | 1.5 | 6.0 | 237 | 0.0-0.6 |
| 20 | 51 | 1500 | 1630 | 1.8 | 0.4 | -0.17 | 3.1 | 7.0 | 290 | 0.0-0.6 |
| WAVE |  |  |  |  |  |  |  |  |  |  |
| 21 | 52 | 920 | 1040 | 2.4 | 0.9 | 0.18 | 1.5 | 6.0 | 253 | 1.0-2.0 |
| 22 | 52 | 1040 | 1145 | 3.0 | 1.0 | 0.09 | 2.0 | 6.0 | 111 | 1.0-2.0 |
| 23 | 52 | 1300 | 1400 | 3.2 | 0.9 | -0.08 | 1.5 | 8.0 | 193 | 1.0-2.0 |
| 24 | 52 | 1500 | 1550 | 2.4 | 0.6 | -0.16 | 1.9 | 6.0 | 152 | 1.0-2.0 |
| 25 | 53 | 1100 | 1215 | 2.7 | 1.0 | 0.14 | 2.8 | 7.0 | 313 | 1.0-2.0 |
| 26 | 53 | 1220 | 1315 | 3.2 | 1.0 | 0.05 | 3.3 | 6.0 | 301 | 1.0-2.0 |
| 27 | 53 | 1600 | 1700 | 2.4 | 0.6 | -0.16 | 2.1 | 5.0 | 310 | 1.0-2.0 |
| 28 | 53 | 1700 | 1845 | 1.9 | 0.4 | -0.22 | 1.0 | 5.0 | 242 | 1.0-2.0 |
| 29 | 54 | 1040 | 1210 | 2.0 | 0.9 | 0.27 | 3.7 | 8.0 | 304 | 0.6-1.3 |
| 30 | 54 | 1210 | 1255 | 2.9 | 1.0 | 0.11 | 2.7 | 6.0 | 260 | 0.6-1.3 |