**Energy Calculations for a range of approaches to Sea Surface Temperature (SST). SST= 30.4°C.**

Ambient surface air conditions: $P_1$ = 100.3 kPa, $T_1$ = 29.4 °C, $U_1$ = 77.5%, $r_1 = r_2$ = 20.50 g kg$^{-1}$, $s_1 = s_2$ = 287.0 J kg$^{-1}$ K$^{-1}$, $h_1$ = 81920 J kg$^{-1}$. Heights based on 17 January 1999, 0000Z Willis Island sounding.

| **Properties** | **Case 0** $q_{23} = 0$ | **Case 1** $A$=3, $B$=10 | **Case 2** $A$=1, $B$=10 | **Case 3** $A$=1, $B$=5 | **Case 4** A=0,B=0 |
|---|---|---|---|---|---|
| $P_2 = P_3$ (kPa) | **95.80** | **91.38** | **83.42** | **81.02** | **74.62** |
| $P_1 - P_2$ (kPa) | 4.50 | 8.92 | 16.88 | 19.28 | 25.68 |
| $T_2$ (°C) | 25.47 | 23.10 | 19.99 | 18.99 | 16.14 |
| $U_2$ (%) | 94 | 103 | 115 | 119 | 131 |
| $h_2$ (J kg$^{-1}$) | 77820 | 73670 | 65720 | 63200 | 56150 |
| $T_3$ = SST – A (°C) | **25.47** | **27.4** | **29.4** | **29.4** | **30.4** |
| $U_3$ = 100 – B (%) | **94** | **90** | **90** | **95** | **100** |
| $r_3 = r_4$ (g kg$^{-1}$) | 20.50 | 23.25 | 28.87 | 31.43 | 38.35 |
| $h_3$ (J kg$^{-1}$) | 77820 | 86840 | 103320 | 109840 | 128590 |
| $s_3 = s_4$ (J K$^{-1}$ kg$^{-1}$) | 287.0 | 331.3 | 413.5 | 444.1 | 531.1 |
| $P_4$ (kPa) | 10 | 10.0 | 7.0 | 7.0 | 5.0 |
| $T_4$ (°C) | -77.39 | -68.01 | -69.91 | -63.21 | -62.77 |
| $z_4$ (m) | 16570 | 16570 | 18580 | 18580 | 20560 |
| $h_4$ (J kg$^{-1}$) | -87890 | -79330 | -84020 | -77970 | -80630 |
| $h_4+gz_4(1+r_4)$ | 77820 | 86840 | 103320 | 109840 | 128590 |
| $q_{23} = h_3-h_2$ (J kg$^{-1}$) | 0 | 13170 | 37590 | 46650 | 72440 |
| $w_{12} = h_1-h_2$ (J kg$^{-1}$) | **4090** | **8250** | **16190** | **18720** | **25770** |
| $v_x$ (m s$^{-1}$) | 90 | 128 | 180 | 193 | 227 |
| $\Delta w_{12}/\Delta T_3$ | n/a | 4050 | base | n/a | n/a |
| $\Delta w_{12}/\Delta U_3$ | n/a | n/a | base | 512 | n/a |
| $\Delta w_{12}/\Delta r_3$ | n/a | n/a | base | 1000 | n/a |
| $\Delta w_{12}/\Delta q_{23}$ | n/a | 32.8% | base | 28.1% | 28.2% |