

Table 1: Cruise periods

		July 2004	June 2005	Aug 2005	May-June 2006	Aug 2007
Wecoma	Cruise period	07/11 – 07/28	06/01 – 06/18	08/04 – 08/25	05/10 – 06/06	08/13 – 08/30
	Dates used in plots	07/11 – 07/28 (Fig. 9ab)	06/01 – 06/18 (Fig. 10ab)	08/08 – 08/22 (Fig. 11ab)	05/22 – 06/06 (Fig. 12ab)	08/15 – 08/26 (Fig. 13ab)
Pt Sur	Cruise period	07/11 – 07/28	05/31 – 06/21		06/05 – 06/12	
	Dates used in plots	07/11 – 07/28 (Fig. 19)	06/01 – 06/05 (Fig. 18)		06/05 - 06/12 (Fig. 20)	
Forerunner (used in plots)			June 13, 15, 21 (Fig. 15 etc)	Aug. 09, 17	June 08, 15, 21	

Table 2: Configurations of select forecast and hindcast simulations

	Reference forecast	Development forecast	Experimental forecast	DB14
Model	ELCIRC	SELFE	SELFE	SELFE
Version	v5.01.02k4	1.3g2 (June 2005), 1.3k (Aug. 2005) 1.4a (since May 2006)	v1.4a (circa 2007)	v1.4a
Time stepping	Semi-implicit	Semi-implicit	Semi-implicit	Semi-implicit
Horizontal grid	Orthogonal unstructured	General unstructured (Fig. 2)	General unstructured (not shown)	General unstructured (Fig. 2)
Vertical grid	62 Z layers	17 Z + 36 S layers	17 Z + 31 S layers	17 Z + 36 S layers
Numerical algorithm	Finite difference / finite volume	Finite element / finite volume	Finite element / finite volume	Finite element / finite volume
Advection (transport)	ELM	Upwind	Upwind	Upwind
Atmospheric forcing	NCEP/ETA	NCEP/ETA	NCEP/ETA	NCEP/ETA (re-analysis)
Freshwater inputs	CR	CR	CR and WA rivers	CR

Table 4. Aggregate error statistics

	Dev	DB14								Dev '06-'07 (v1.4a)								Dev '06	DB14 '06
	All	All	U	D	L	H	N	B	S	All	U	D	L	H	N	B	S	All	All
C.C.	0.62	0.76	0.75	0.74	0.86	0.70	0.81	0.71	0.66	0.68	0.65	0.78	0.79	0.69	0.83	0.50	0.40	0.79	0.74
RMSE	3.73	3.29	3.08	4.17	2.84	3.19	2.31	6.10	3.43	3.45	3.24	3.96	2.68	3.41	2.27	6.56	3.81	4.37	4.28

Notes:

- (1) all cases exclude estuarine points;
- (2) Dev-all: June & Aug 05, May 06, Aug. 07 of Wecoma and June 05 of Pt Sur;
- (3) DB14-all: July 04, June & Aug 05, May 06 of Wecoma and June 05 of Pt Sur;
- (4) Dev-2006-7: Dev of all 06 and 07 cruises; v1.4a (or equivalent) is used;
- (5) Dev- and DB14-2006: 2006 is the only overlapping year between Dev and DB14 that use same code (v1.4a);
- (6) “U, D, L, H, N, B, S”: upwelling (v_wind<0), downwelling (v_wind>0), low flow (<5000), high flow (>9000), north plume, bulge plume (within 10 km of mouth), south plume.

Table 5: RMS errors and correlation coefficients for 2005-2006 forecasts, normalized by DB14

	Wecoma Jun '05		Wecoma Aug '05		Wecoma May '06	
SELFE	V1.3g2		V1.3k		V1.4a	
	RMS	CC	RMS	CC	RMS	CC
Dev/DB14	1.29	0.62	0.99	0.85	1.02	1.07
Dev/DB14-N	1.70	0.27	0.94	0.60	1.04	1.06
Dev/DB14-B	1.82	0.22	1.01	0.62	1.00	1.08
Dev/DB14-S	1.10	0.63	0.89	1.12	0.83	1.25