Table 1. Case 1 Summary of Submissions

Label	Organization	Authors	Method
ONERA-flu3m-les-3d	ONERA	Mary	LES, 3-D
ONERA-flu3m-lam			Laminar N-S
ONERA-flu3m-sa			URANS, SA model
UKY-ghost-sst	U. Kentucky	Huang, Chen, Katam,	URANS, SST model
UKY-ghost-sst(fine)		Parimi, LeBeau, Huang	URANS, SST model, fine grid
GWU-vicar3d-3d(fine)	GWU	Rupesh, Ravi, Mittal,	Laminar N-S, fine grid, 3-D
GWU-vicar3d-3d		Raju, Gallas, Cattafesta	Laminar N-S, 3-D
GWU-vicar3d-3d(4.5d)			Laminar N-S, larger domain, 3-D
NCAT-quas1d+rans	NC A&T State U. & NASA LaRC	Yamaleev, Carpenter, Vatsa	Reduced-order model in slot + 4th order laminar N-S
POIT-saturne-ke0.5c	U. Poitiers	Carpy, Manceau	URANS, k-e model, dt=0.5, coarse grid
POIT-saturne-ke0.25c			URANS, k-e model, dt=0.25, coarse grid
POIT-saturne-ke0.25f			URANS, k-e model, dt=0.25, fine grid
POIT-saturne-rsm0.5c			URANS, RSM model, dt=0.5, coarse grid
POIT-saturne-rsm0.125c			URANS, RSM model, dt=0.125, coarse grid
WARWICK-neat-ke	U. Warwick & U. Wales	Preece, Tucker, Liu	URANS, k-e model
WARWICK-neat-kenon			URANS, nonlinear k-e model
WARWICK-neat-easm			URANS, EASM model
WASHU-wind-sa	Washington U.	Cui, Agarwal	URANS, SA model
WASHU-wind-sst			URANS, SST model
WASHU-wind-sstles			SST-LES
NASA-tlns3d-sa	NASA LaRC	Vatsa, Turkel	URANS, SA model
NASA-tlns3d-sa(coar)			URANS, SA model, coarse grid
NASA-tlns3d-sa(fine)			URANS, SA model, fine grid
NASA-tlns3d-sa(low-dt)			URANS, SA model, with lower dt
NASA-tlns3d-sst			URANS, SST model

Table 2. Case 1 Summary of Grids and Time Steps

Label	Grid type	Grid size	Time steps / cycle
ONERA-flu3m-3d-les	3-D Structured, periodic	930,000 cells	5000
ONERA-flu3m-lam	2-D Structured	51,700 cells	5000
ONERA-flu3m-sa	2-D Structured	51,700 cells	5000
UKY-ghost-sst	2-D Structured Grid#1	63,553 points	2880
UKY-ghost-sst(fine)	2-D Structured Grid#2	198,545 points	2880
GWU-vicar3d-3d(fine)	3-D Structured, periodic	696,960 points	14,000
GWU-vicar3d-3d	3-D Structured, periodic	464,640 points	14,000
GWU-vicar3d-3d(4.5d)	3-D Structured, periodic	696,960 points	14,000
NCAT-quas1d+rans	2-D Structured	98,379 points	118,567
POIT-saturne-ke0.5c	2-D Structured (no cavity)	15,707 cells	720
POIT-saturne-ke0.25c	2-D Structured (no cavity)	15,707 cells	1440
POIT-saturne-ke0.25f	2-D Structured (no cavity)	62,828 cells	1440
POIT-saturne-rsm0.5c	2-D Structured (no cavity)	15,707 cells	720
POIT-saturne-rsm0.125c	2-D Structured (no cavity)	15,707 cells	2880
WARWICK-neat-ke	2-D Structured (no cavity)	4851 points	3600
WARWICK-neat-kenon	2-D Structured (no cavity)	4851 points	3600
WARWICK-neat-easm	2-D Structured (no cavity)	4851 points	3600
WASHU-wind-sa	2-D Structured	35,986 points	10,000
WASHU-wind-sst	2-D Structured	35,986 points	10,000
WASHU-wind-sstles	2-D Structured	35,986 points	10,000
NASA-tlns3d-sa	2-D Structured Grid#1	63,553 points	72
NASA-tlns3d-sa(coar)	2-D Structured	16,107 points	72
NASA-tlns3d-sa(fine)	2-D Structured	87,753 points	72
NASA-tlns3d-sa(low-dt)	2-D Structured Grid#1	63,553 points	144
NASA-tlns3d-sst	2-D Structured Grid#1	63,553 points	72

Table 3. Case 2 Summary of Submissions

Label	Organization	Authors	Method
NASA-cfl3d-sa	NASA LaRC	Rumsey	URANS, SA model
NASA-cfl3d-sa(fine)			URANS, SA model, fine grid
NASA-cfl3d-sst			URANS, SST model
NASA-cfl3d-easmko			URANS, EASM-ko model
USTO-rans-tlv	USTO & ETH	Azzi, Lakehal	URANS, 2-layer k-e TLV model
USTO-rans-easm			URANS, EASM model
ONERA-flu3m-les	ONERA	Dandois, Garnier, Sagaut	LES
CIRA-zen-ke-nocav	CIRA	Marongiu	URANS, k-e model
NASA-fun3d-sa	NASA LaRC	Atkins	URANS, SA model
NASA-fun3d-sa(fine)			URANS, SA model, fine grid

Table 4. Case 2 Summary of Grids and Time Steps

Label	Grid type	Grid size	Time steps / cycle
NASA-cfl3d-sa	Full-plane, every other point of Structured Grid#1	0.49 million cells	720
NASA-cfl3d-sa(fine)	Full-plane, Structured Grid#1	3.9 million cells	720
NASA-cfl3d-sst	Full-plane, every other point of Structured Grid#1	0.49 million cells	1440
NASA-cfl3d-easmko	Full-plane, every other point of Structured Grid#1	0.49 million cells	1440
USTO-rans-tlv	Half plane structured	0.21 million cells	360
USTO-rans-easm	Half plane structured	0.21 million cells	360
ONERA-flu3m-les	Full plane structured	1.7 million cells	6667
CIRA-zen-ke-nocav	Half plane structured (no cavity)	775,680 cells	720
NASA-fun3d-sa	Half plane unstructured	46,000 nodes	720
NASA-fun3d-sa(fine)	Half plane Unstructured Grid#1	0.26 million nodes	720

Table 5. Case 3 Summary of Submissions

Label	Organization	Authors	Method
AFRL-fdl3di-ke-c2	OAI & AFRL	Morgan, Rizzetta, Visbal	RANS, k-e model, 2nd order
AFRL-fdl3di-ke-c2-3d			RANS, k-e model, 2nd order, 3-D
AFRL-fdl3di-ke-c4			RANS, k-e model, 4th order
AFRL-fdl3di-ke-c4-3d			RANS, k-e model, 4th order, 3-D
AFRL-fdl3di-ke-f2			RANS, k-e model, fine grid, 2nd order
AZ-cobalt-des-1-3d	Arizona State & Cobalt Solutions	Krishnan, Squires, Forsythe	DES, 3-D
AZ-cobalt-sa-1-bler			RANS, SA model, B.L. on top wall, extended grid w refined normal
AZ-cobalt-sa-1-blr			RANS, SA model, B.L. on top wall, grid w refined normal
AZ-cobalt-sa-1-r			RANS, SA model, grid w refined normal
AZ-cobalt-sa-blc-3d			RANS, SA model, B.L. on all walls, coarse grid, 3-D
AZ-cobalt-sa-blf-3d			RANS, SA model, B.L. on all walls, fine grid, 3-D
AZ-cobalt-sa-blm-3d			RANS, SA model, B.L. on all walls, medium grid, 3-D
AZ-cobalt-sst-blm-3d			RANS, SST model, B.L. on all walls, medium grid, 3-D
AZ-cobalt-sa-1			RANS, SA model, fine grid
AZ-cobalt-sa-1c			RANS, SA model, coarsened normal direction
AZ-cobalt-sa-2			RANS, SA model
AZ-cobalt-sst-1			RANS, SST model, fine grid
AZ-cobalt-sst-1c			RANS, SST model, coarsened normal direction
AZ-cobalt-sst-2			RANS, SST model
AZ-cobalt-sa-u1			RANS, SA model, unstructured fine grid
AZ-cobalt-sa-u2			RANS, SA model, unstructured
BOEING-overflow-sa	Boeing	Shmilovich, Yadlin, Clark	RANS, SA model
BOEING-overflow-sst			RANS, SST model
META-cfd++ke3-3d	Metacomp Tech	Shariff, Batten	RANS, cubic k-e model, 3-D
META-cfd++lns-3d			LNS, 3-D

Table 5. Case 3 Summary of Submissions, cont'd

Label	Organization	Authors	Method
CTR-fluent-sa-1	CIRA & CTR	Marongiu, Iaccarino,	RANS, SA model, fine grid
CTR-fluent-sa-2		Catalano, Amato	RANS, SA model
CIRA-zen-sst-kprof-3			RANS, SST model with k-profile at inflow
CIRA-zen-sst-nj-3			RANS, SST model, normal-jet suction
CIRA-zen-sst-oj-3			RANS, SST model, oblique-jet suction
CIRA-zen-sst-3			RANS, SST model
CIRA-zen-ke-3			RANS, k-e model
CIRA-zen-ke			RANS, k-e model, fine grid
CIRA-zen-sst			RANS, SST model, fine grid
NASA-cfl3d-easm-2	NASA LaRC	Rumsey	RANS, EASM model
NASA-cfl3d-sa-1			RANS, SA model, fine grid
NASA-cfl3d-sa-2			RANS, SA model
NASA-cfl3d-sst-2			RANS, SST model
NASA-cfl3d-sa-top-5			RANS, SA model, top wall modified for blockage
NASA-rans-sst-weno5	NASA LaRC	Balakumar	RANS, SST model, 5th order weno
NASA-fun2d-sa-u1	NASA LaRC	Viken	RANS, SA model, fine grid
NASA-fun2d-sa-u2			RANS, SA model
UAZ-cfl3d-easmfsm-3d	U. Arizona	Israel, Fasel	FSM with linear EASM, 3-D
UAZ-dns-3d	U. Arizona	Postl, Wernz, Fasel	DNS, 3-D
UK-ghost-sst-1	U. Kentucky	Katam, Chen, Huang, Parimi, LeBeau, Huang	RANS, SST model, fine grid
UK-ghost-sst-2			RANS, SST model
UMD-rans-sa-cent-2	U. Maryland	Duraisamy, Baeder	RANS (central), SA model
UMD-rans-sa-cent-2-3d			RANS (central), SA model, 3-D
UMD-rans-sst-cent-2			RANS (central), SST model
UMD-rans-sa-cent-1			RANS (central), SA model, fine grid
UMD-rans-sa-roe-2			RANS (Roe), SA model
UMD-rans-sst-roe-2			RANS (Roe), SST model
US-fluent-ko	Utah State	Spall, Phillips, Alley	RANS, k-o model
US-fluent-ke			RANS, k-e model
US-fluent-sa			RANS, SA model
US-fluent-sst			RANS, SST model
US-fluent-v2f			RANS, v2f model

Table 6. Case 3 Summary of Grids and Time Steps

Label	Grid type	Grid size	Time steps / cycle
AFRL-fdl3di-ke-c2	2-D Structured	50,410 points	5,948
AFRL-fdl3di-ke-c2-3d	3-D Structured (half span / inviscid side)	2.6 million points	N/A
AFRL-fdl3di-ke-c4	2-D Structured	50,410 points	11,896
AFRL-fdl3di-ke-c4-3d	3-D Structured (half span / inviscid side)	2.6 million points	N/A
AFRL-fdl3di-ke-f2	2-D Structured	199,790 points	11,896
AZ-cobalt-des-1-3d	3-D Structured (periodic span)	4.7 million nodes / 4.5 million cells	N/A
AZ-cobalt-sa-1-bler	2-D Structured (extended upstream, refined normal dir)	254,208 cells	N/A
AZ-cobalt-sa-1-blr	2-D Structured (refined normal dir)	241,920 cells	N/A
AZ-cobalt-sa-1-r	2-D Structured (refined normal dir)	241,920 cells	N/A
AZ-cobalt-sa-blc-3d	3-D Unstructured (half span w plate)	610,881 nodes / 2.6 million cells	N/A
AZ-cobalt-sa-blf-3d	3-D Unstructured (half span w plate)	2.3 million nodes / 10.7 million cells	N/A
AZ-cobalt-sa-blm-3d	3-D Unstructured (half span w plate)	1.1 million nodes / 4.9 million cells	N/A
AZ-cobalt-sst-blm-3d	3-D Unstructured (half span w plate)	1.1 million nodes / 4.9 million cells	N/A
AZ-cobalt-sa-1	2-D Structured Grid#1	208,320 cells	N/A
AZ-cobalt-sa-1c	2-D Structured	110,880 cells	722
AZ-cobalt-sa-2	2-D Structured Grid#2	52,080 cells	N/A
AZ-cobalt-sst-1	2-D Structured Grid#1	208,320 cells	N/A
AZ-cobalt-sst-1c	2-D Structured	110,880 cells	N/A
AZ-cobalt-sst-2	2-D Structured Grid#2	52,080 cells	N/A
AZ-cobalt-sa-u1	2-D Unstructured Grid#1	123,703 nodes / 247,404 cells	N/A
AZ-cobalt-sa-u2	2-D Unstructured Grid#2	57,152 nodes / 114,302 cells	N/A
BOEING-overflow-sa	2-D Structured overset	47,790 points	800
BOEING-overflow-sst	2-D Structured overset	47,790 points	N/A
META-cfd++ke3-3d	3-D Structured (half span)	2,472,520 cells	N/A
META-cfd++lns-3d	3-D Structured (periodic span)	1,816,000 cells	N/A

Table 6. Case 3 Summary of Grids and Time Steps (cont'd)

Label	Grid type	Grid size	Time steps / cycle
CTR-fluent-sa-1	2-D Structured Grid#1 w/o zone 4	197,952 cells	N/A
CTR-fluent-sa-2	2-D Structured Grid#2 w/o zone 4	49,488 cells	N/A
CIRA-zen-sst-kprof-3	2-D Structured Grid#3 (no cavity)	143,613 points	N/A
CIRA-zen-sst-nj-3	2-D Structured Grid#3 (no cavity)	143,613 points	N/A
CIRA-zen-sst-oj-3	2-D Structured Grid#3 (no cavity)	143,613 points	N/A
CIRA-zen-sst-3	2-D Structured Grid#3 (no cavity)	143,613 points	N/A
CIRA-zen-ke-3	2-D Structured Grid#3 (no cavity)	143,613 points	720
CIRA-zen-ke	2-D Structured grid (no cavity)	171,072 cells	N/A
CIRA-zen-sst	2-D Structured grid (no cavity)	171,072 cells	N/A
NASA-cfl3d-easm-2	2-D Structured Grid#2	52,080 cells	N/A
NASA-cfl3d-sa-1	2-D Structured Grid#1	208,320 cells	360
NASA-cfl3d-sa-2	2-D Structured Grid#2	52,080 cells	N/A
NASA-cfl3d-sst-2	2-D Structured Grid#2	52,080 cells	N/A
NASA-cfl3d-sa-top-5	2-D Structured Grid#5	52,080 cells	N/A
NASA-rans-sst-weno5	2-D Structured overset (no cavity)	103,452 points	N/A
NASA-fun2d-sa-u1	2-D Unstructured Grid#1	123,703 nodes / 247,404 cells	200 & 400
NASA-fun2d-sa-u2	2-D Unstructured Grid#2	57,152 nodes / 114,302 cells	N/A
UAZ-cfl3d-easmfsm-3d	3-D Structured (periodic span, no cavity)	2.8 million points	200
UAZ-dns-3d	3-D Structured (periodic span, no cavity)	105.2 million points	N/A
UK-ghost-sst-1	2-D Structured Grid#1 w/o zone 4	197,952 cells	N/A
UK-ghost-sst-2	2-D Structured Grid#2 w/o zone 4	49,488 cells	N/A

Table 6. Case 3 Summary of Grids and Time Steps (cont'd)

Label	Grid type	Grid size	Time steps / cycle
UMD-rans-sa-cent-2	2-D Structured Grid#2	52,080 cells	612
UMD-rans-sa-cent-2-3d	3-D Structured Grid (half span)	2.1 million cells	N/A
UMD-rans-sst-cent-2	2-D Structured Grid#2	52,080 cells	N/A
UMD-rans-sa-cent-1	2-D Structured Grid#1	208,320 cells	N/A
UMD-rans-sa-roe-2	2-D Structured Grid#2	52,080 cells	612
UMD-rans-sst-roe-2	2-D Structured Grid#2	52,080 cells	N/A
US-fluent-ko	2-D Unstructured Grid	85,760 cells	N/A
US-fluent-ke	2-D Unstructured Grid	85,760 cells	N/A
US-fluent-sa	2-D Unstructured Grid	85,760 cells	N/A
US-fluent-sst	2-D Unstructured Grid	85,760 cells	N/A
US-fluent-v2f	2-D Unstructured Grid	85,760 cells	N/A