General Information

- Please add the *initial of your first name* and *your surname* + "_" in the beginning of each file name. For example, if your name is John Smith, a file *fig1_1-01.eps* should be *jsmith_fig1_1-01.eps*
- Please archive all of your figure files and integral data files for all cases into one zipped file. The file name should be *your first name initial* and *your surname* + ".zip". For example, if your name is John Smith, the file name is *jsmith.zip* .
- The archived file should be uploaded to the FTP server of NMRI via FTP. User account name and password are required to login the server. Please contact the organizer (cfdws05@nmri.go.jp) to obtain these informations.

Integral variables

Coefficients of forces and moments

File name	int3.dat
Style	plain text

The data should be written as following format.
The items which are not available should be left blank.

beta = 0
CX = *value*
CXP = *value*
CXF = *value*
CY = *value*
CYP = *value*
CYF = *value*
CN = *value*
beta = 3
CX = *value*
CXP = *value*
CXF = *value*
CY = *value*
CYP = *value*
CYF = *value*
CN = *value*
beta = 6
CX = *value*
CXP = *value*
CXF = *value*
CY = *value*
CYP = *value*
CYF = *value*
CN = *value*
beta = 9
CX = *value*
CXP = *value*
CXF = *value*
CY = *value*
CYP = *value*
CYF = *value*
CN = *value*
beta = 12
CX = *value*

CXP = *value*
CXF = *value*
CY = *value*
CYP = *value*
CYF = *value*
CN = *value*

Uncertainty analysis of coefficients of forces and moments

File name	int3ua.dat
Style	plain text

The data should be written as following format.
The items which are not available should be left blank.

beta = 0
(E of CX)/(measured CX) = *value*
(UV of CX)/(measured CX) = *value*
(-UV of CX)/(measured CX) = *value*
(E of CY)/(measured CY) = *value*
(UV of CY)/(measured CY) = *value*
(-UV of CY)/(measured CY) = *value*
(E of CN)/(measured CN) = *value*
(UV of CN)/(measured CN) = *value*
(-UV of CN)/(measured CN) = *value*
(E of N/Y)/(measured N/Y) = *value*
(UV of N/Y)/(measured N/Y) = *value*
(-UV of N/Y)/(measured N/Y) = *value*
beta = 3
(E of CX)/(measured CX) = *value*
(UV of CX)/(measured CX) = *value*
(-UV of CX)/(measured CX) = *value*
(E of CY)/(measured CY) = *value*
(UV of CY)/(measured CY) = *value*
(-UV of CY)/(measured CY) = *value*
(E of CN)/(measured CN) = *value*
(UV of CN)/(measured CN) = *value*
(-UV of CN)/(measured CN) = *value*
(E of N/Y)/(measured N/Y) = *value*
(UV of N/Y)/(measured N/Y) = *value*
(-UV of N/Y)/(measured N/Y) = *value*
beta = 6
(E of CX)/(measured CX) = *value*
(UV of CX)/(measured CX) = *value*
(-UV of CX)/(measured CX) = *value*
(E of CY)/(measured CY) = *value*
(UV of CY)/(measured CY) = *value*
(-UV of CY)/(measured CY) = *value*
(E of CN)/(measured CN) = *value*
(UV of CN)/(measured CN) = *value*
(-UV of CN)/(measured CN) = *value*
(E of N/Y)/(measured N/Y) = *value*
(UV of N/Y)/(measured N/Y) = *value*
(-UV of N/Y)/(measured N/Y) = *value*
beta = 9
(E of CX)/(measured CX) = *value*
(UV of CX)/(measured CX) = *value*
(-UV of CX)/(measured CX) = *value*

(E of CY)/(measured CY) = *value*
(UV of CY)/(measured CY) = *value*
(-UV of CY)/(measured CY) = *value*
(E of CN)/(measured CN) = *value*
(UV of CN)/(measured CN) = *value*
(-UV of CN)/(measured CN) = *value*
(E of N/Y)/(measured N/Y) = *value*
(UV of N/Y)/(measured N/Y) = *value*
(-UV of N/Y)/(measured N/Y) = *value*
beta = 12
(E of CX)/(measured CX) = *value*
(UV of CX)/(measured CX) = *value*
(-UV of CX)/(measured CX) = *value*
(E of CY)/(measured CY) = *value*
(UV of CY)/(measured CY) = *value*
(-UV of CY)/(measured CY) = *value*
(E of CN)/(measured CN) = *value*
(UV of CN)/(measured CN) = *value*
(-UV of CN)/(measured CN) = *value*
(E of N/Y)/(measured N/Y) = *value*
(UV of N/Y)/(measured N/Y) = *value*
(-UV of N/Y)/(measured N/Y) = *value*

Fig.3-1 Integral variables: Coefficients of forces and moments, $C_X, C_Y, C_N, N/Y$ versus β

File name	fig3-01_CX.eps (for C_X) fig3-01_CY.eps (for C_Y) fig3-01_CN.eps (for C_N) fig3-01_NY.eps (for N/Y)
Axis size	75 [mm] × 40 [mm]
Horizontal-axis variable and range	$-3 \leq \beta \leq 15$
Vertical-axis variable and range	$-0.025 \leq C_X \leq 0.0$ $-0.02 \leq C_Y \leq 0.1$ $-0.005 \leq C_N \leq 0.035$ $0.0 \leq N/Y \leq 0.7$
Style	CFD solid line, EFD open circles

Red line is corrected at 06/Dec/2004
Magenta line is corrected at 20/Dec/2004

Fig.3-2 Uncertainty analysis of coefficients of forces and moments $C_X, C_Y, C_N, N/Y$ versus β

This figure will be made by NMRI, since it is difficult to determine the ranges for E and $\pm U_V$ in advance. Please send us the data file "int3ua.dat" described above. E and U_V should be divided by the corresponding measured data, e.g. E/(measured C_X), U_V/(measured C_Y) and so on. (10/Dec/2004)

Fig.3-3 Axial velocity contours and cross flow vectors on the WAKE 1 plane ($\beta = 0, 6, 12[deg]$)

File name	fig3-03_00_wake.eps ($\beta = 0°$, u/U contours) fig3-03_06_wake.eps ($\beta = 6°$, u/U contours) fig3-03_12_wake.eps ($\beta = 12°$, u/U contours) fig3-03_00_vw.eps ($\beta = 0°$, $v/U, w/U$ vectors) fig3-03_06_vw.eps ($\beta = 6°$, $v/U, w/U$ vectors) fig3-03_12_vw.eps ($\beta = 12°$, $v/U, w/U$ vectors)
Axis size	160 [mm] × 40 [mm]
Horizontal-axis variable and range	$-0.16 \leq y/L_{PP} \leq 0.16$
Vertical-axis variable and range	$-0.08 \leq z/L_{PP} \leq 0.0$
Contour range and levels	$0 \leq u/U \leq 1$, $\Delta(u/U) = 0.1$
Reference vector	magnitude 0.1 corresponds to 2 [mm]
Style	u/U contours: solid lines

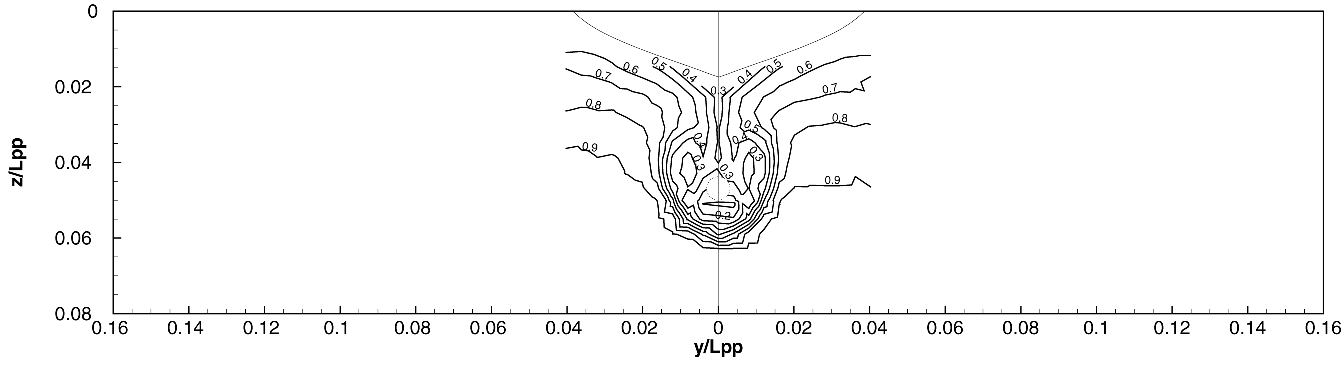

Fig. 3- 1: fig3-03_00_wake.eps

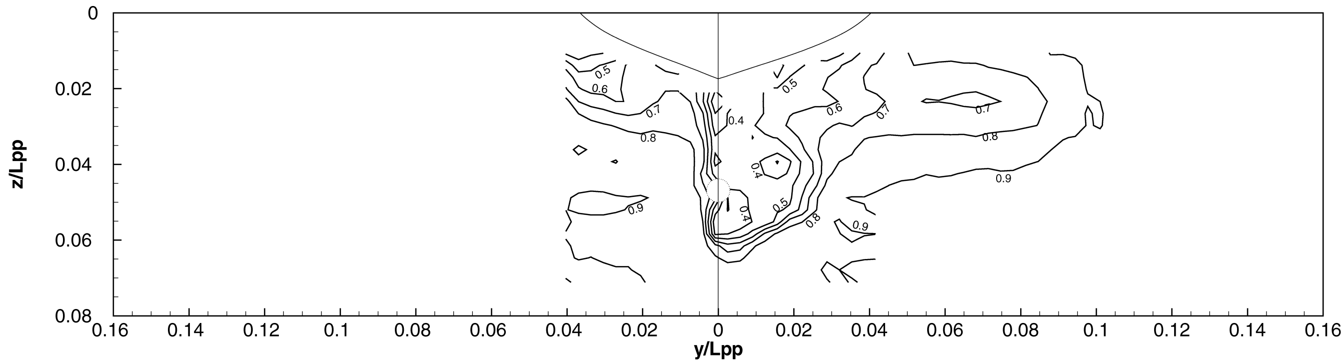

Fig. 3- 2: fig3-03_06_wake.eps

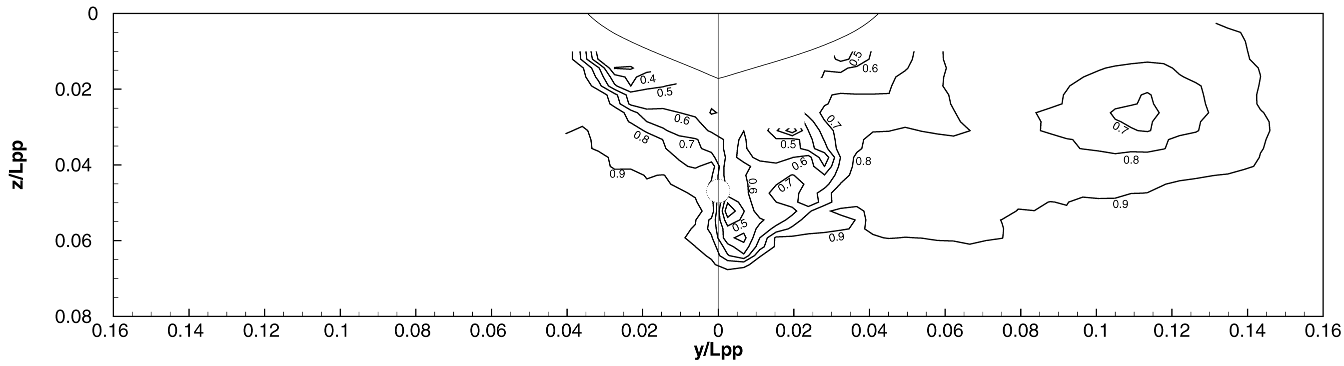

Fig. 3- 3: fig3-03_12_wake.eps

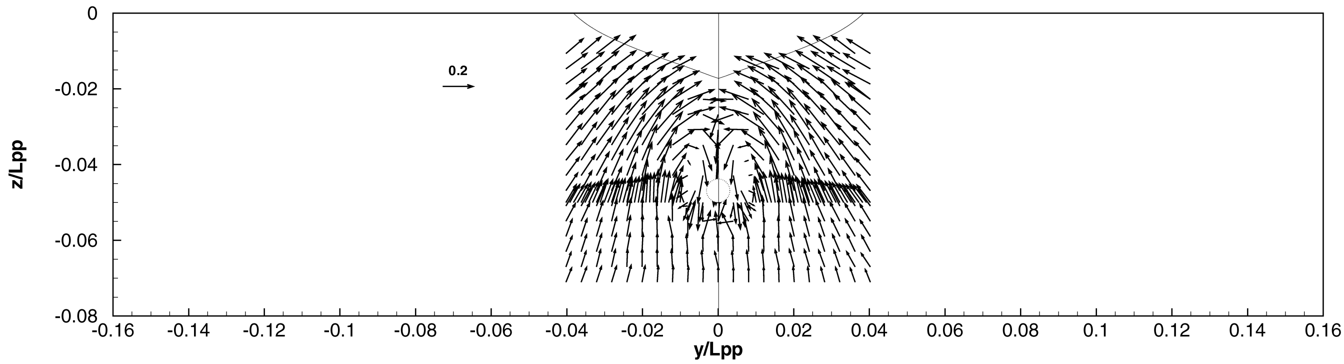

Fig. 3- 4: fig3-03_00_vw.eps

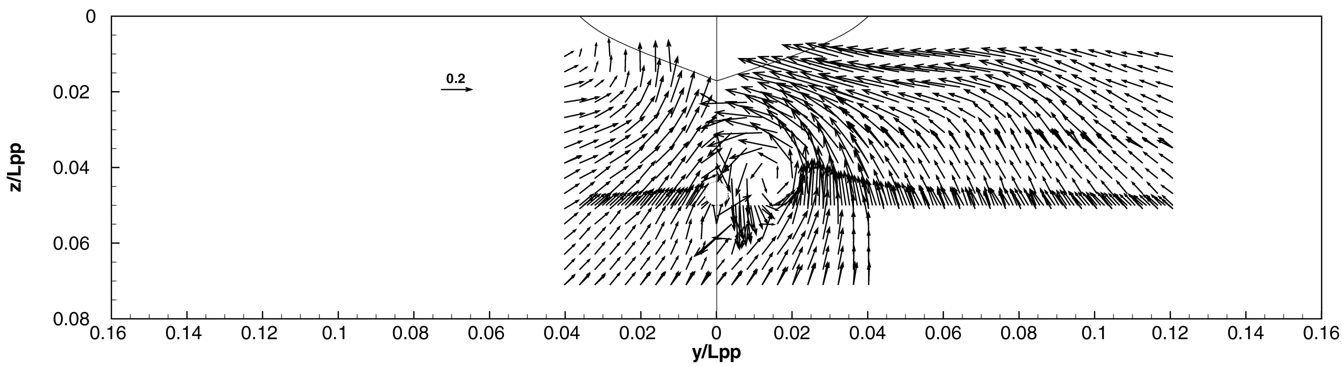

Fig. 3- 5: fig3-03_06_vw.eps

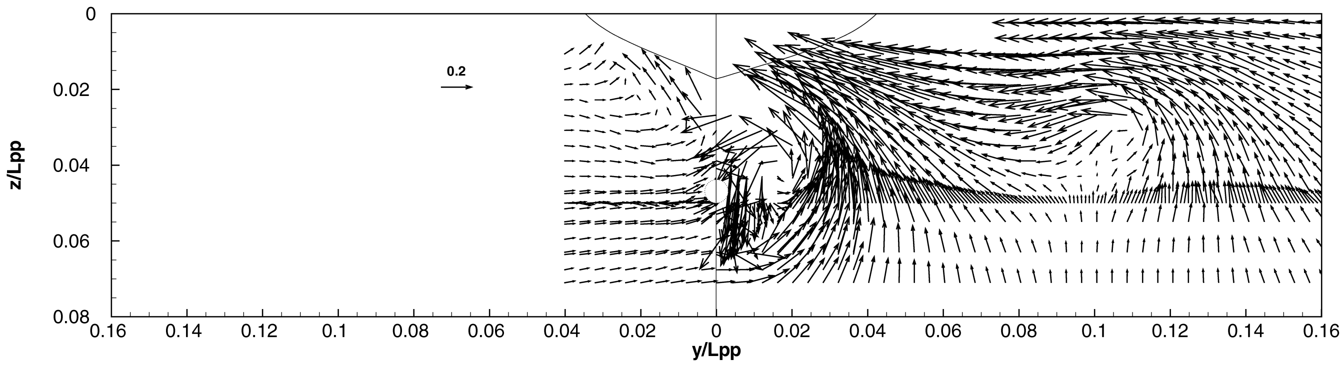

Fig. 3- 6: fig3-03_12_vw.eps

Fig.3-4 Velocity on the WAKE 1 plane at $z/L_{PP} = -0.05$, $\beta = 0, 6, 12[deg]$

File name	fig3-04_00.eps ($\beta = 0°$) fig3-04_06.eps ($\beta = 6°$) fig3-04_12.eps ($\beta = 12°$)
Axis size	75 [mm] × 40 [mm]
Horizontal-axis variable and range	$-0.05 \leq y/L_{PP} \leq 0.18$
Vertical-axis variable and range	$-0.6 \leq u/U, v/U, w/U \leq 1.0$
Style	u/U: CFD solid line; EFD open squares v/U: CFD dashed line; EFD open triangles w/U: CFD dotted line; EFD open circles

Red line is corrected at 10/Dec/2004

Fig.3-5 Uncertainty analysis of velocity on the WAKE 1 plane at $z/L_{PP} = -0.05$, $\beta = 0, 6, 12[deg]$

File name	fig3-05_00.eps ($\beta = 0°$) fig3-05_06.eps ($\beta = 6°$) fig3-05_12.eps ($\beta = 12°$)
Axis size	80 [mm] × 60 [mm]
Horizontal-axis variable and range	$-0.16 \leq y/L_{PP} \leq 0.16$
Vertical-axis variable and range	$-0.1 \leq E/U, \pm U_V/U \leq 0.1$
Style	u/U: E solid line; U_V dashed line v/U: E dash dot line; U_V dotted line w/U: E long dashed line; U_V dash double dot line

Red line is corrected at 03/Dec/2004

Fig.3-6 Kinematic eddy viscosity (ν_t) and longitudinal component of vorticity (ω_x) contours on the WAKE 1 plane

File name	fig3-06_00_nut.eps ($\beta = 0°$, for ν_t) fig3-06_06_nut.eps ($\beta = 6°$, for ν_t) fig3-06_12_nut.eps ($\beta = 12°$, for ν_t) fig3-06_00_omgx.eps ($\beta = 0°$, for ω_x) fig3-06_06_omgx.eps ($\beta = 6°$, for ω_x) fig3-06_12_omgx.eps ($\beta = 12°$, for ω_x)
Axis size	160 [mm] × 40[mm]
Horizontal-axis variable and range	$-0.16 \leq y/L_{PP} \leq 0.16$
Vertical-axis variable and range	$-0.08 \leq z/L_{PP} \leq 0.0$
Contour levels	$\Delta\nu_t = 0.5 \times 10^{-5}$, $\Delta\omega_x = 10$
Style	ν_t contours: solid lines ω_x contours: (+) solid lines; (-) dashed lines

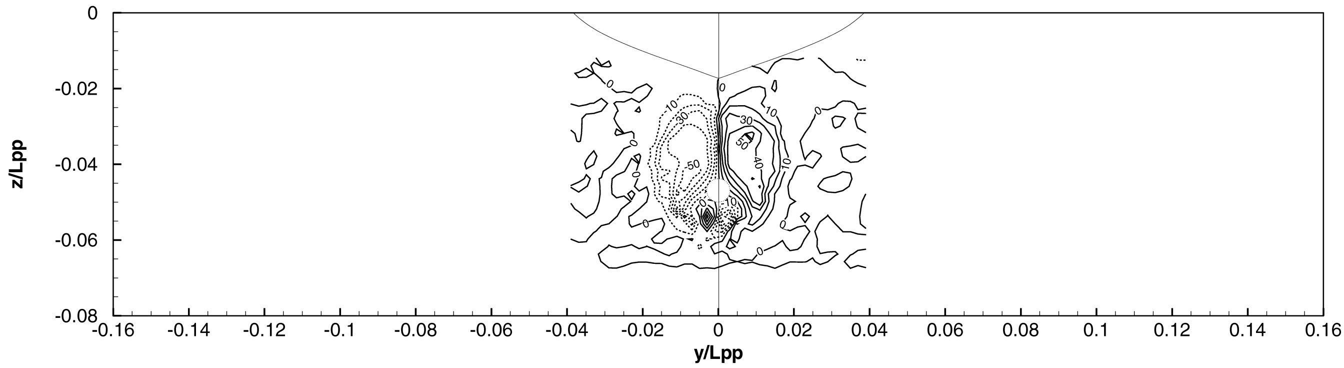

Fig. 3- 7: fig3-06_00_omgx.eps

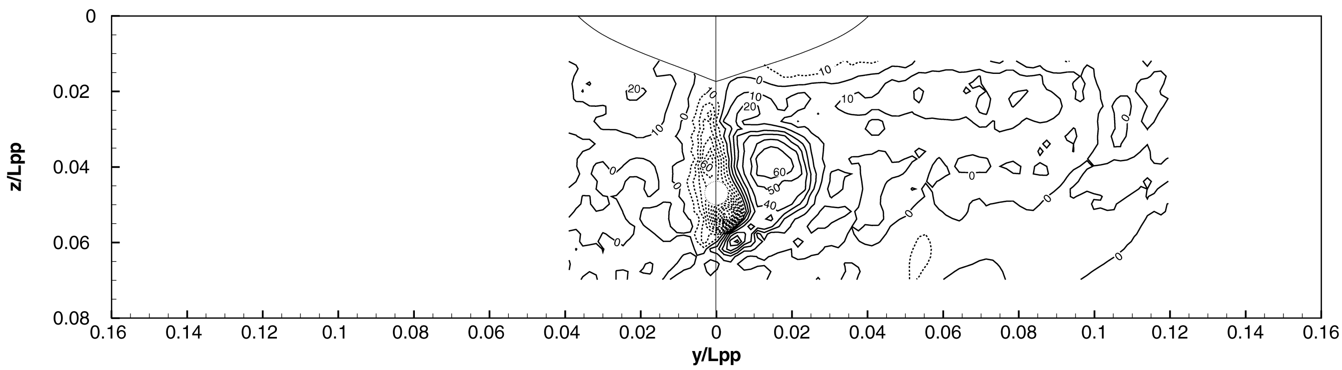

Fig. 3- 8: fig3-06_06_omgx.eps

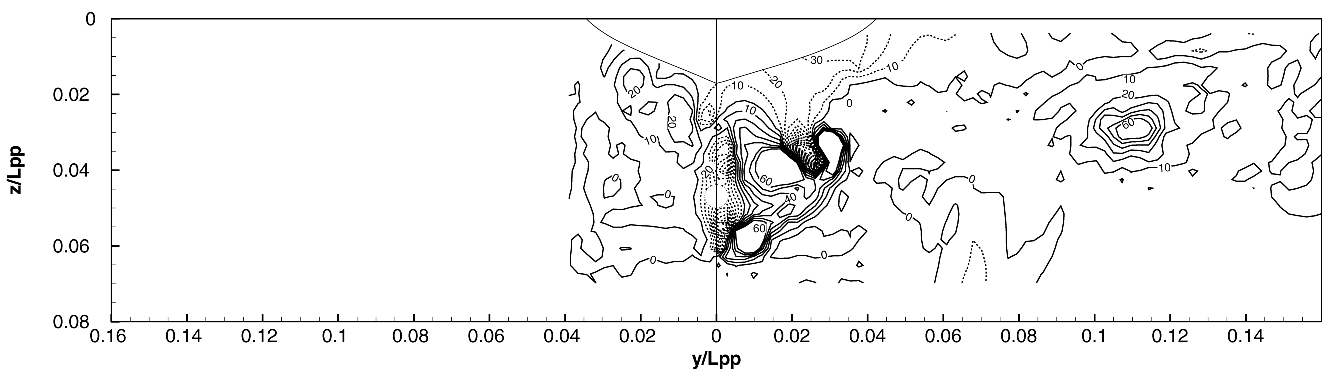

Fig. 3- 9: fig3-06_12_omgx.eps

Fig.3-7 Hull surface pressure contours (port side, starboard side, and bottom view)

File name	fig3-07_06_fore.eps ($\beta = 6°$, fore part) fig3-07_06_aft.eps ($\beta = 6°$, aft part) fig3-07_12_fore.eps ($\beta = 12°$, fore part) fig3-07_12_aft.eps ($\beta = 12°$, aft part)
Axis size	123.2 [mm] × 88 [mm]
Horizontal-axis variable and range	$-0.55 \leq x/L_{PP} \leq 0.0$ for fore part $0.0 \leq x/L_{PP} \leq 0.55$ for aft part
Vertical-axis variable and range	$-0.07 \leq z/L_{PP} \leq 0$ for port and starboard side view $-0.1 \leq y/L_{PP} \leq 0.1$ for bottom biew
Contour range and levels	$-1.0 \leq C_p \leq 1.0$, $\Delta C_p = 0.05$
Style	(+) solid lines; (-) dashed lines
Remarks	The order of arranging figures is port side view, bottom view, and starboard side view beginning at the top with proper spacing. The direction of x axis is from left to right. The direction of y axis in a bottom view and z axis in a starboard side view are upside down.

Fig.3-8 Hull surface pressure at $x/L_{PP} = 0.4$ and $x/L_{PP} = -0.4$

File name	fig3-08_00_s1.eps ($\beta = 0°$, $x/L_{PP} = 0.4$) fig3-08_00_s9.eps ($\beta = 0°$, $x/L_{PP} = -0.4$) fig3-08_06_s1.eps ($\beta = 6°$, $x/L_{PP} = 0.4$) fig3-08_06_s9.eps ($\beta = 6°$, $x/L_{PP} = -0.4$) fig3-08_12_s1.eps ($\beta = 12°$, $x/L_{PP} = 0.4$) fig3-08_12_s9.eps ($\beta = 12°$, $x/L_{PP} = -0.4$)
Axis size	75 [mm] × 40 [mm]
Horizontal-axis variable and range	$-0.1 \leq y/L_{PP} \leq 0.1$
Vertical-axis variable and range	$-0.15 \leq C_p \leq 0.05, (\beta = 0°, x/L_{PP} = 0.4)$ $-0.45 \leq C_p \leq 0.0, (\beta = 0°, x/L_{PP} = -0.4)$ $-0.25 \leq C_p \leq 0.05, (\beta = 6°, x/L_{PP} = 0.4)$ $-0.55 \leq C_p \leq 0.0, (\beta = 6°, x/L_{PP} = -0.4)$ $-0.35 \leq C_p \leq 0.05, (\beta = 12°, x/L_{PP} = 0.4)$ $-0.55 \leq C_p \leq 0.0, (\beta = 12°, x/L_{PP} = -0.4)$
Style	CFD solid line, EFD open circles

Red line is corrected at 22/Dec/2004

NMRI-EXPERIMENT

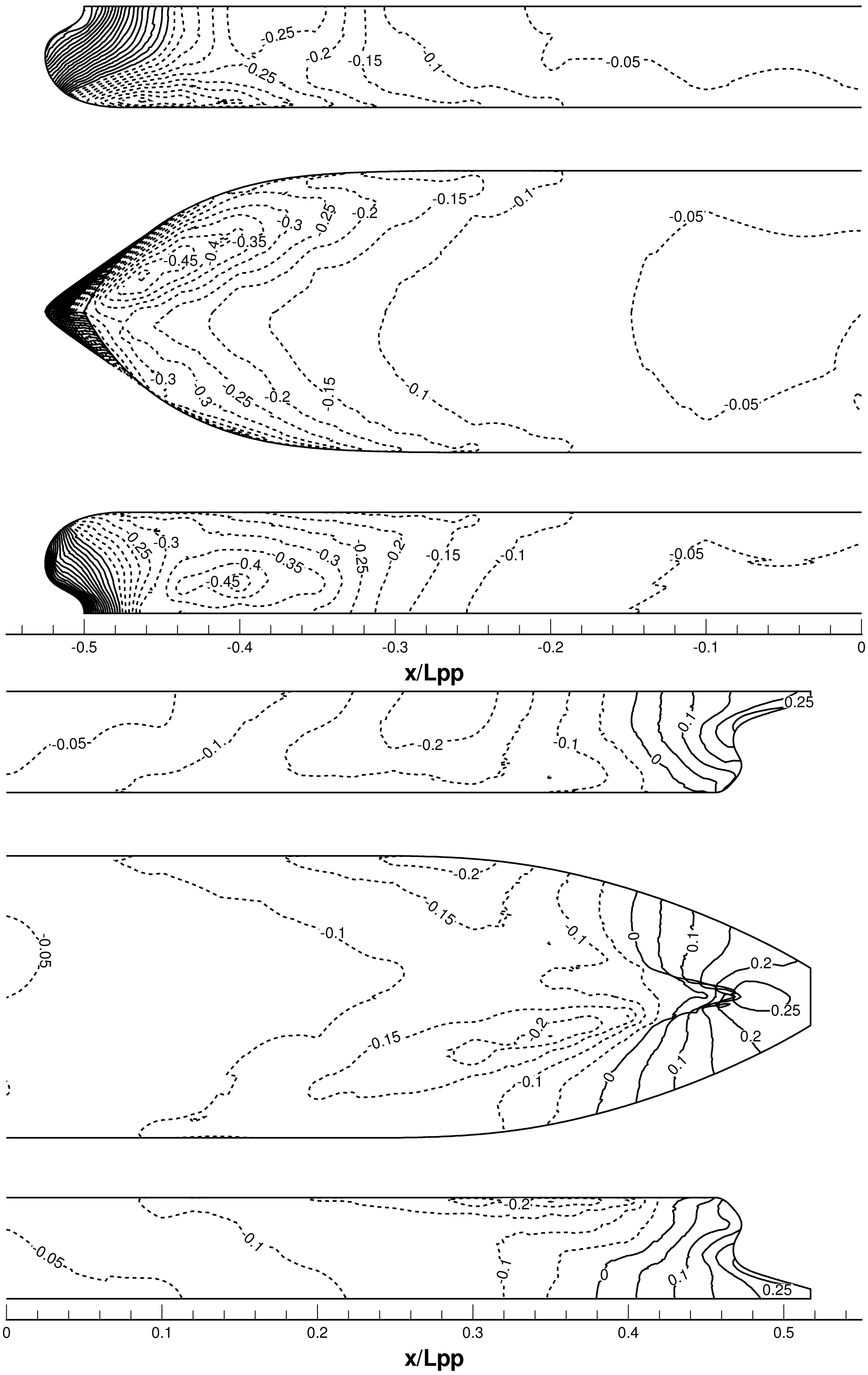

Fig. 3- 10: fig3-07_06_fore.eps (above) and fig3-07_06_aft.eps (below)

NMRI-EXPERIMENT

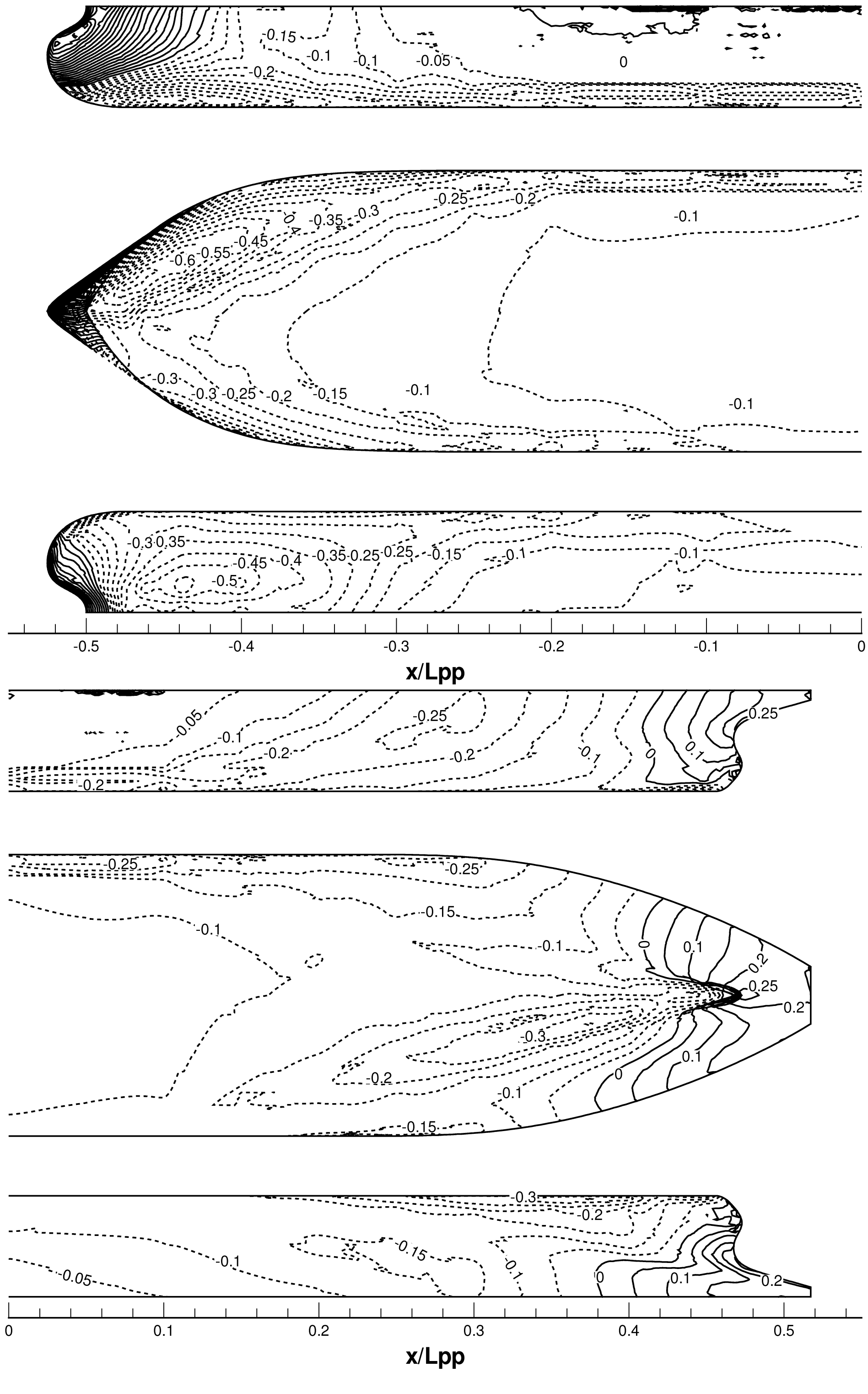

Fig. 3- 11: fig3-07_12_fore.eps (above) and fig3-07_12_aft.eps (below)

Fig.3-9 Uncertainty analysis of hull surface pressure (U_{SN}, U_V, E) at $x/L_{PP} = -0.4$ and $x/L_{PP} = 0.4$

File name	fig3-09_00_s1.eps ($\beta = 0°$, $x/L_{PP} = 0.4$) fig3-09_00_s9.eps ($\beta = 0°$, $x/L_{PP} = -0.4$) fig3-09_06_s1.eps ($\beta = 6°$, $x/L_{PP} = 0.4$) fig3-09_06_s9.eps ($\beta = 6°$, $x/L_{PP} = -0.4$) fig3-09_12_s1.eps ($\beta = 12°$, $x/L_{PP} = 0.4$) fig3-09_12_s9.eps ($\beta = 12°$, $x/L_{PP} = -0.4$)
Axis size	80 [mm] × 60 [mm]
Horizontal-axis variable and range	$-0.1 \leq y/L_{PP} \leq 0.1$
Vertical-axis variable and range	$-0.6 \leq U_{SN}/C_{p\_range}, \pm U_V/C_{p\_range}, E/C_{p\_range} \leq 0.6$
Validation scale	$C_{p\_range} = 0.5, (\beta = 0°,\ x/L_{PP} = 0.4)$ $C_{p\_range} = 0.1, (\beta = 0°,\ x/L_{PP} = -0.4)$ $C_{p\_range} = 0.5, (\beta = 6°,\ x/L_{PP} = 0.4)$ $C_{p\_range} = 0.2, (\beta = 6°,\ x/L_{PP} = -0.4)$ $C_{p\_range} = 0.5, (\beta = 12°,\ x/L_{PP} = 0.4)$ $C_{p\_range} = 0.3, (\beta = 12°,\ x/L_{PP} = -0.4)$
Style	$\pm U_{SN}$ dotted line U_V dashed line E solid line

Fig.3-10 Distribution of the side force component along the hull

File name	fig3-10_06.eps ($\beta = 6°$) fig3-10_12.eps ($\beta = 12°$)
Axis size	125 [mm] × 50 [mm]
Horizontal-axis variable and range	$-0.6 \leq x/L_{PP} \leq 0.6$
Vertical-axis variable and range	$-0.1 \leq \Delta Y_p \leq 0.5$
Style	CFD solid line, EFD open circles

Red line is corrected at 02/Dec/2004

Fig.3-11 Uncertainty analysis of distribution of the side force component along the hull

File name	fig3-11_06.eps ($\beta = 6°$)
	fig3-11_12.eps ($\beta = 12°$)
Axis size	125 [mm] × 50 [mm]
Horizontal-axis variable and range	$-0.6 \leq x/L_{PP} \leq 0.6$
Vertical-axis variable and range	$-0.6 \leq E/\Delta Y_{range}, \pm U_V/\Delta Y_{range} \leq 0.6$
Validation scale	$\Delta Y_{range} = 0.25 \quad (\beta = 6°)$
	$\Delta Y_{range} = 0.5 \quad (\beta = 12°)$
Style	E solid line; U_V dashed line

Red line is corrected at 02/Dec/2004
Magenta line is corrected at 28/Dec/2004

Fig.3-12 Limiting stream lines (port, starboard, and bottom views)

File name	fig3-12_06_fore.eps ($\beta = 6°$, fore part)
	fig3-12_06_aft.eps ($\beta = 6°$, aft part)
	fig3-12_12_fore.eps ($\beta = 12°$, fore part)
	fig3-12_12_aft.eps ($\beta = 12°$, aft part)
Axis size	123.2 [mm] × 88 [mm]
Horizontal-axis variable and range	$-0.55 \leq x/L_{PP} \leq 0.0$ for fore part
	$0.0 \leq x/L_{PP} \leq 0.55$ for aft part
Vertical-axis variable and range	$-0.07 \leq z/L_{PP} \leq 0$ for port and starboard side view
	$-0.1 \leq y/L_{PP} \leq 0.1$ for bottom biew
Style	Participants choose starting points and spacing
Remarks	The order of arranging figures is port side view, bottom view, and starboard side view beginning at the top with proper spacing.
	The direction of x axis is from left to right.
	The direction of y axis in a bottom view and z axis in a starboard side view are upside down.

Red line is corrected at 08/Dec/2004
Magenta line is added at 18/Jan/2005