

### Important

AIAA paper 2007-893 has several typos in coefficients in weighted compact nonlinear scheme.

See <http://flab.eng.isas.jaxa.jp/member/nonomura/top/research/HWCNS.pdf> for more accurate coefficients. Followings are the correct value (red characters).

Table 8  $a^3_{k,j}$  of ninth order ( $r=5$ )WCNS.

|       | $a^3_{k,1}$ | $a^3_{k,2}$ | $a^3_{k,3}$ | $a^3_{k,4}$ | $a^3_{k,5}$ |
|-------|-------------|-------------|-------------|-------------|-------------|
| $k=1$ | 3/2         | -7          | 12          | -9          | 5/2         |
| $k=2$ | 1/2         | -3          | 6           | -5          | 3/2         |
| $k=3$ | -1/2        | 1           | 0           | -1          | 1/2         |
| $k=4$ | -3/2        | 5           | -6          | 3           | -1/2        |
| $k=5$ | -5/2        | 9           | -12         | 7           | -3/2        |

Table 10  $C_k$  of fifth order ( $r=2$ )WCNS.

| $C_1$ | $C_2$ | $C_3$ |
|-------|-------|-------|
| 1/16  | 10/16 | 5/16  |

Table 12  $C_k$  of ninth order ( $r=4$ )WCNS.

| $C_1$ | $C_2$  | $C_3$   | $C_4$  | $C_5$ |
|-------|--------|---------|--------|-------|
| 1/256 | 36/256 | 126/256 | 84/256 | 9/256 |

Table 13 Coefficients of the cell-center to cell-node difference scheme.

| coefficients                | $\alpha$               | $\beta$               | $a$                     | $b$                      | $c$                     | $d$                  | $e$                 |
|-----------------------------|------------------------|-----------------------|-------------------------|--------------------------|-------------------------|----------------------|---------------------|
| fourth order explicit       | 0                      | 0                     | $\frac{9}{8}$           | $\frac{1}{24}$           | 0                       | 0                    | 0                   |
| fourth order tri-diagonal   | $\frac{1}{22}$         | 0                     | $\frac{12}{11}$         | 0                        | 0                       | 0                    | 0                   |
| sixth order explicit        | 0                      | 0                     | $\frac{75}{64}$         | $\frac{25}{384}$         | $\frac{3}{640}$         | 0                    | 0                   |
| sixth order tri-diagonal    | $\frac{9}{62}$         | 0                     | $\frac{63}{62}$         | $\frac{17}{186}$         | 0                       | 0                    | 0                   |
| eighth order explicit       | 0                      | 0                     | $\frac{1225}{1024}$     | $\frac{245}{3072}$       | $\frac{49}{5120}$       | $\frac{5}{7168}$     | 0                   |
| eighth order tri-diagonal   | $\frac{25}{118}$       | 0                     | $\frac{2675}{2832}$     | $\frac{925}{5664}$       | $\frac{61}{28320}$      | 0                    | 0                   |
| eighth order penta-diagonal | $\frac{6114}{25669}$   | $\frac{183}{51338}$   | $\frac{23400}{25669}$   | $\frac{14680}{77007}$    | 0                       | 0                    | 0                   |
| tenth order explicit        | 0                      | 0                     | $\frac{19845}{16384}$   | $\frac{735}{8192}$       | $\frac{567}{40960}$     | $\frac{405}{229376}$ | $\frac{35}{294912}$ |
| tenth order tri-diagonal    | $\frac{49}{190}$       | 0                     | $\frac{12985}{14592}$   | $\frac{78841}{364800}$   | $\frac{343}{72960}$     | $\frac{129}{851200}$ | 0                   |
| tenth order penta-diagonal  | $\frac{96850}{288529}$ | $\frac{9675}{577058}$ | $\frac{683425}{865587}$ | $\frac{505175}{1731174}$ | $\frac{69049}{8655870}$ | 0                    | 0                   |