命令模式

WIND [(SPeed)] knots [/CD: Cd]

Specifies wind speed in knots at 10 meters above the waterplane.

设定水面以上 10 米处的风速，以节为单位。

WIND (PRessure) p | p1 @ h1, ..., pn @ hn [/LINEAR | STEPwise]

Specifies wind pressure as a function of height above the waterplane.

根据距离水面的高度来定义风压。

WIND @ h

Displays the wind speed and pressure at the given height above the waterplane.

显示水面以上指定高度处的风速和风压。

WIND OFF

Turns wind pressure off. If wind heeling moment is active, it is turned off.

关闭风压。如果风倾力矩是激活的，它也将被关闭。

WIND [REPort] [/HEIGHTs: h1, ..., hn]

Displays wind speed and pressure for a list of heights above the waterplane (screen only unless REPORT is included).

显示水面以上一系列高度的风速和风压。（仅屏幕显示除非包含参数 REPORT）.

Note: The WIND command is useful in connection with the HMMT command. It provides data which, together with the model geometry, allows wind heeling moments to be derived automatically.

注释：命令 WIND 与命令 HMMT 连用来使用。它提供的信息连同风模型能够自动的得到风倾力矩。

参数说明

knots

Wind speed in knots.

风速，单位为节。

Cd

The nondimensional drag coefficient (1.2 if omitted).

无量纲拖曳系数，（缺省时为 1.2）

p

Pressure in current weight units / current length units squared.

风压，采用当前的重量单位/长度单位的平方

h

Height above the waterplane.

距离水面以上的高度

/LINEAR

Causes linear interpolation to be used between the given points on the pressure curve rather than the default 3rd-order curve fitted to the given points.

在给定的点之间线性插值得到风压而不是以默认的 3 阶曲线拟合得到风压

/STEPWISE

Uses the pressure given at each height without change until the next higher point. This parameter should normally only be used when the HMMT WIND command is based on zero-heel lateral plane data (i.e. /CONST, /C1, /C2 and /C:p) in order to prevent solving difficulties due to step discontinuities.

在每一高度处采用指定的风压，保持不变，直到下一个更高的点。一般只在 HMMT WIND 命令是以横倾为零的侧投影面积为基础来计算时(例如： /CONST, /C1, /C2 and /C:p)，才能使用此参数。以避免因为步长不连续导致的求解困难。

/HEIGHTS: h1, ..., hn

Specified a list of report heights. If omitted, any heights given in /LINEAR or /STEPWISE pressure mode are used, otherwise a default list is furnished.

设定一系列报告显示的高度。若缺省，在/LINEAR 或 /STEPWISE 参数中设置的高度将被应用，否则将为默认的高度。

Operation

操作

In the SPEED mode, pressure is derived by

p = Cd * d * s^2 / (2*g)

使用 SPEED 的模式下，风压通过以下公式计算：

p = Cd * d * s^2 / (2*g)

where d, the density of air, is assumed to be 1.254 kg/m^3, g is the acceleration of gravity, and s is the wind speed.

d 为空气密度：1.254 kg/m^3，g 为重力加速度，s 为风速。

In various units, this function is

p = Cd * 0.00347 * s^2 lb/ft^2 where s is in knots;

= Cd * 0.00122 * s^2 lb/ft^2 where s is in ft/sec

= Cd * 0.06393 * s^2 kg/m^2 where s is in m/sec

在各单位计算中：

p = Cd * 0.00347 * s^2 lb/ft^2 其中 s 单位：节;

= Cd * 0.00122 * s^2 lb/ft^2 其中 s 单位：英尺/秒；

= Cd * 0.06393 * s^2 kg/m^2　其中 s 单位：米/秒

The wind speed is assumed to vary with distance above the waterplane according to

s(h) = knots * 0.4868 * (0.124 * ln(h) + 0.772) m/sec

风速随水面以上高度的增加而变化，公式为：

s(h) = knots * 0.4868 * (0.124 * ln(h) + 0.772) m/sec

where h is the distance above the waterplane in meters. Note that this function is calibrated such that it yields the nominal speed knots (expressed in meters/sec) at a height of 10 meters.

其中 h 为距水面的高度，单位为米。这个公式以距离水面高度为 10 米时的风速（换算为 m/s）来校准。

In the PRESSURE mode, wind pressure is given directly. If pressure is given at n points and 2≤n≤4, a polynomial of degree n-1 is used to represent the pressure as a function of height. If more than 4 points are given (the maximum allowed is 20 points) then a 3rd degree polynomial is fitted to the data by the least-squares method.

在 PRESSURE 模式下，直接定义出风压。如果风压定义了 n 个高度点，当 2≤n≤4 时，则将会用一个 n-1 次的多项式曲线来拟合高度与风压的方程。当 n>4 时（n 最大为 20），则一个以最小二乘法计算的 3 阶多项式将会被用来拟合。

The WIND command does not in itself cause wind moments to be applied to the vessel. It only supplies the wind pressure function which can then be made use of through the HMMT command. Note that the WIND command must be issued before the HMMT command in order for it to have effect. Please refer to the HMMT command description for more information.

WIND 命令并不能自己产生作用在船舶上的风压力矩，它只是提供风压信息，通过命令 HMMT 来调用。注意 WIND 命令必须在 HMMT 命令之前使用才能起作用。请参考命令 HMMT。

Display Output

显示输出

If the WIND command is given in the form WIND @ h, it displays (on the screen only) the speed, drag coefficient, and/or pressure at the given height above the waterplane. WIND alone or with REPORT produces a table of heights, speeds (in SPEED mode), and pressures.

如果 WIND 命令以 WIND @ h 的形式使用时，它将显示（仅屏幕显示）指定高度处的风速，拖曳系数 ，或指定高度处的风压。单独使用 WIND 命令或伴随参数 REPORT 使用时，将显示一系列高度，以及对应的风速（SPEED 模式下）和风压。

Nondisplay Output

无显示输出

WIND REPORT produces a secondary table for plot purposes (similar to the one in its display output).

WIND REPORT 命令将输出一个绘制曲线的次级表格（与显示输出相似）

Examples

样例

Specifying a 100-knot wind at 10 meters:

指定在 10 米处风速为 100 节

WIND 100

Specifying IMO Severe Wind:

指定为 IMO 中气象衡准的风速

WIND 53.4

Specifying USCG Severe Wind:

指定为 USCG 中气象衡准的风速

WIND 65.4

Specifying constant wind pressure:

指定一个恒定的风压

WIND (PRESSURE) 0.0514

Specifying pressure in lb/ft^2 at heights of 15, 33 and 60:

设定高度 15，33 和 60 处的风压，单位 lb/ft^2

UNIT LB

WIND (PRESSURE) 31 @ 15, 42 @ 33, 53 @ 60

Displaying the wind pressure at height of 50:

显示在高度 50 处的风压。

WIND @ 50