7. DOWN-PLUNGE VIEWS

I Main Topics

   A Concepts behind a down-plunge view

   B Construction procedure

   C Matlab procedure
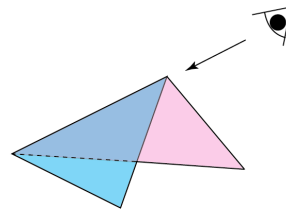
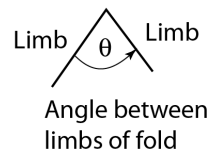GG303

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7. DOWN-PLUNGE VIEWS

II Concepts behind a
   down-plunge view

Viewing a cylindrical fold down-plunge

View of a cylindrical fold down-plunge
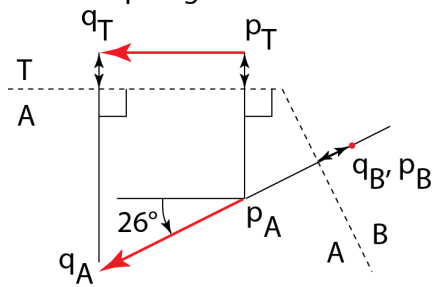
Limb   θ   Limb

Angle between
limbs of fold

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7. DOWN-PLUNGE VIEWS

III Construction procedure

Construction Procedure
for down-plunge view
of a line that trends west
and plunges 26°

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7. DOWN-PLUNGE VIEWS

IV Matlab procedure

  A Find coordinates of n points in three dimensions

  B Assign points to a series of column vectors

  C Find rotation matrix for reference frame in down-plunge view

  D Transform points from original reference frame to rotated reference frame and plot

  E Alternative: plot points in 3D and use Matlab's "view" command to view

$$\begin{bmatrix} x''' \\ y''' \\ z''' \end{bmatrix} = \begin{bmatrix} a_{x''x} & a_{x''y} & a_{x''z} \\ a_{y''x} & a_{y''y} & a_{y''z} \\ a_{z''x} & a_{z''y} & a_{z''z} \end{bmatrix} \begin{bmatrix} x \\ y \\ z \end{bmatrix}$$

For 1 point
For n points

$$\begin{bmatrix} x_1''' & x_2''' & \cdots & x_n''' \\ y_1''' & y_2''' & \cdots & y_n''' \\ z_1''' & z_2''' & \cdots & z_n''' \end{bmatrix} = \begin{bmatrix} a_{x''x} & a_{x''y} & a_{x''z} \\ a_{y''x} & a_{y''y} & a_{y''z} \\ a_{z''x} & a_{z''y} & a_{z''z} \end{bmatrix} \begin{bmatrix} x_1 & x_2 & \cdots & x_3 \\ y_1 & y_2 & \cdots & y_3 \\ z_1 & z_2 & \cdots & z_3 \end{bmatrix}$$

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