

Including Graphics in L^AT_EX

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1 Including external graphics

	EPS	PDF	JPG	GIF	PNG
L ^A T _E X	yes	no	yes*	no	yes*
PDFL ^A T _E X	no	yes	yes	no	yes

Please note: only EPS and PDF are scalable. Use JPG and PNG for photographs only!

Many programs can generate EPS directly. You can use Micrografx/Corel Designer to export (almost?) everything to EPS format. Just Copy/Paste objects in Designer and export to "EPS no header or preview".

Use EPS2PDF (installed on your Windows desktop) to convert EPS to PDF.

* does not work automatically when working with L^AT_EX. You should enter the coordinates of the bounding box manually.

Including graphics:

- In preamble:

```
\usepackage{graphicx}
```

- Including the graphic file:

```
\includegraphics [width=0.7\linewidth]{filename}
```

Use the file name **without** extension! \LaTeX will take the EPS file, PDF \LaTeX will take the PDF file automatically.

2 The includegraphics command

```
\includegraphics [options]{filename}
```

When including EPS or PDF files, use the file name **without** extension! \LaTeX will take the EPS, PDF \LaTeX will take the PDF.

Supported options are:

scale=number	magnifies the figure by <i>number</i> over its natural size.
width=length	specifies the width to which the figure should be scaled
height=length	specifies the height to which the figure should be scaled
angle=number	rotates the figure counterclockwise over the specified angle (in degrees)
bb=llx lly urx ury	enters the coordinates of the bounding box manually.

3 Floating Figures

Use a figure environment to create floating figures. \LaTeX will position the image on the place that you specify, or on the top of the next page if it doesn't fit on the current page anymore. In a figure environment you can use a caption to give a description of the figure, and a label to refer to the image.

```
\begin{figure}[ht]  
\begin{center}  
\includegraphics [width=8cm]{images/rsm}  
\caption{a response surface.}
```

```
\label{fig:surface}  
\end{center}  
\end{figure}
```

Now you can refer to the image:

```
See figure \ref{fig:figure}.
```

Please note:

The external figures will be embedded in the PostScript and PDF file, but not in the DVI file!

4 Inline floats

The package `wrapfig` makes it possible to place text next to floats:

```
\begin{wrapfigure}{placement}[overhang]{width}  
\includegraphics[width=\linewidth]{image}  
\end{wrapfigure}
```

`placement` horizontal placement: l (left) or r (right). For two-sided documents: i (inside edge) or o (outside edge).

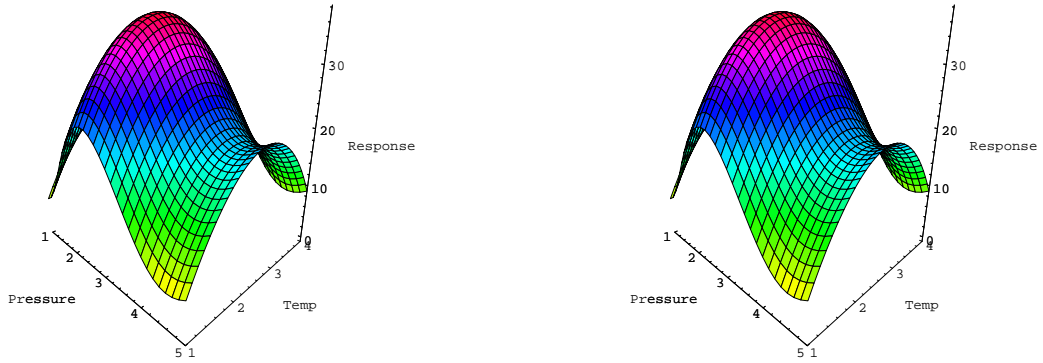
`overhang` overhang of the float into the margin (default: 0pt).

`width` width of the figure or table (use `wraptable` for tables).

5 Two floats next to each other

5.1 No caption

```
\includegraphics[width=0.45\linewidth]{pic1}  
\hfill  
\includegraphics[width=0.45\linewidth]{pic2}
```



5.2 One caption

```

\begin{figure}[ht]
\includegraphics[width=0.45\linewidth]{pic1}
\hfill
\includegraphics[width=0.45\linewidth]{pic2}
\caption{a response surface.}
\label{fig:surface}
\end{figure}

```

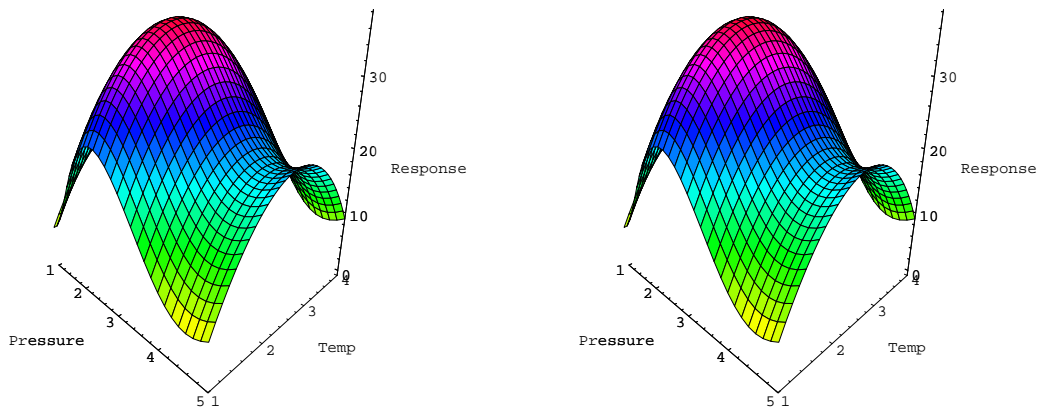


Figure 1: a response surface.

5.3 Two captions

Now we need the package `caption`. This package has very extensive functionality to change the appearance of captions. In this case we are only going to use the new command `\captionof`.

```
\parbox[t]{0.45\textwidth}{
  \includegraphics[width=\linewidth]{pic1}
  \captionof{figure}{the first figure}
}
\hfill
\parbox[t]{0.45\textwidth}{
  \includegraphics[width=\linewidth]{pic2}
  \captionof{figure}{the second figure}
}
```

For tables, just replace `figure` by `table`.

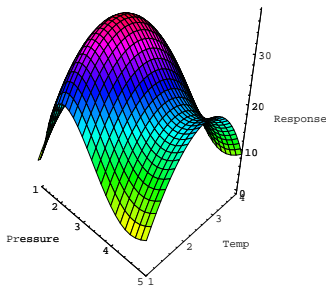


Figure 2: the first figure

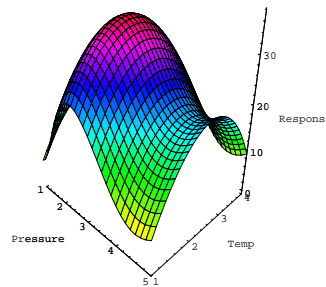


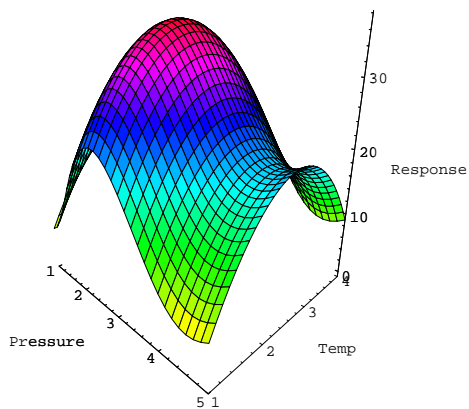
Figure 3: the second figure

5.4 Sub-captions

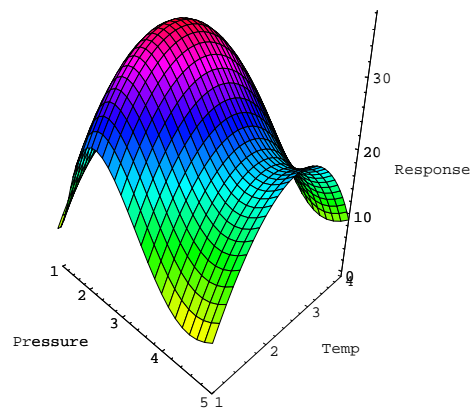
Now we need the package `subfig`:

```
\begin{figure}[ht]
\begin{center}
\subfloat[First figure]{
  \includegraphics[width=0.45\textwidth]{pic1}
}
\subfloat[Second figure]{
```

```
\includegraphics[width=0.45\textwidth]{pic2}
}
\caption{Two figures}
\end{center}
\end{figure}
```



(a) First figure



(b) Second figure

Figure 4: Two figures