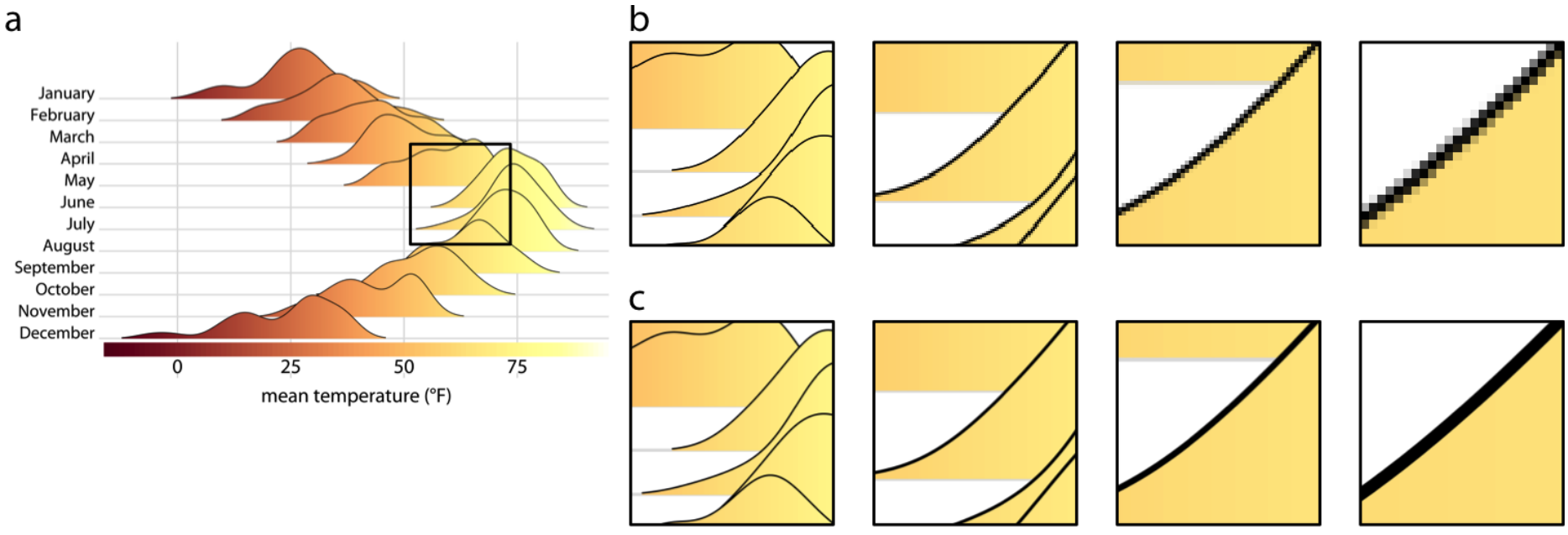
Chapter 27
Image file formats

Fundamentals of Data Visualization

May 6, 2023

Bitmap vs. Vector



- Vector graphics always sharp
- Vector graphics can be enormous for large data sets
- Vector graphics can be very small for small data sets

Common formats

Table 27.1: Commonly used image file formats

Acronym	Name	Type	Application
pdf	Portable Document Format	vector	general purpose
eps	Encapsulated PostScript	vector	general purpose, outdated; use pdf
svg	Scalable Vector Graphics	vector	online use
png	Portable Network Graphics	bitmap	optimized for line drawings
jpeg	Joint Photographic Experts Group	bitmap	optimized for photographic images
tiff	Tagged Image File Format	bitmap	print production, accurate color reproduction
raw	Raw Image File	bitmap	digital photography, needs post-processing
gif	Graphics Interchange Format	bitmap	outdated for static figures, Ok for animations

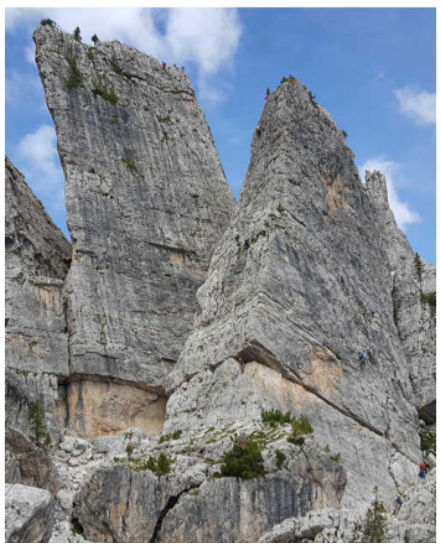
Recommendations:

- Vector: pdf
- Bitmap: png
- Very large bitmap: jpeg

Lossless and lossy compression of bitmaps

a

432KB

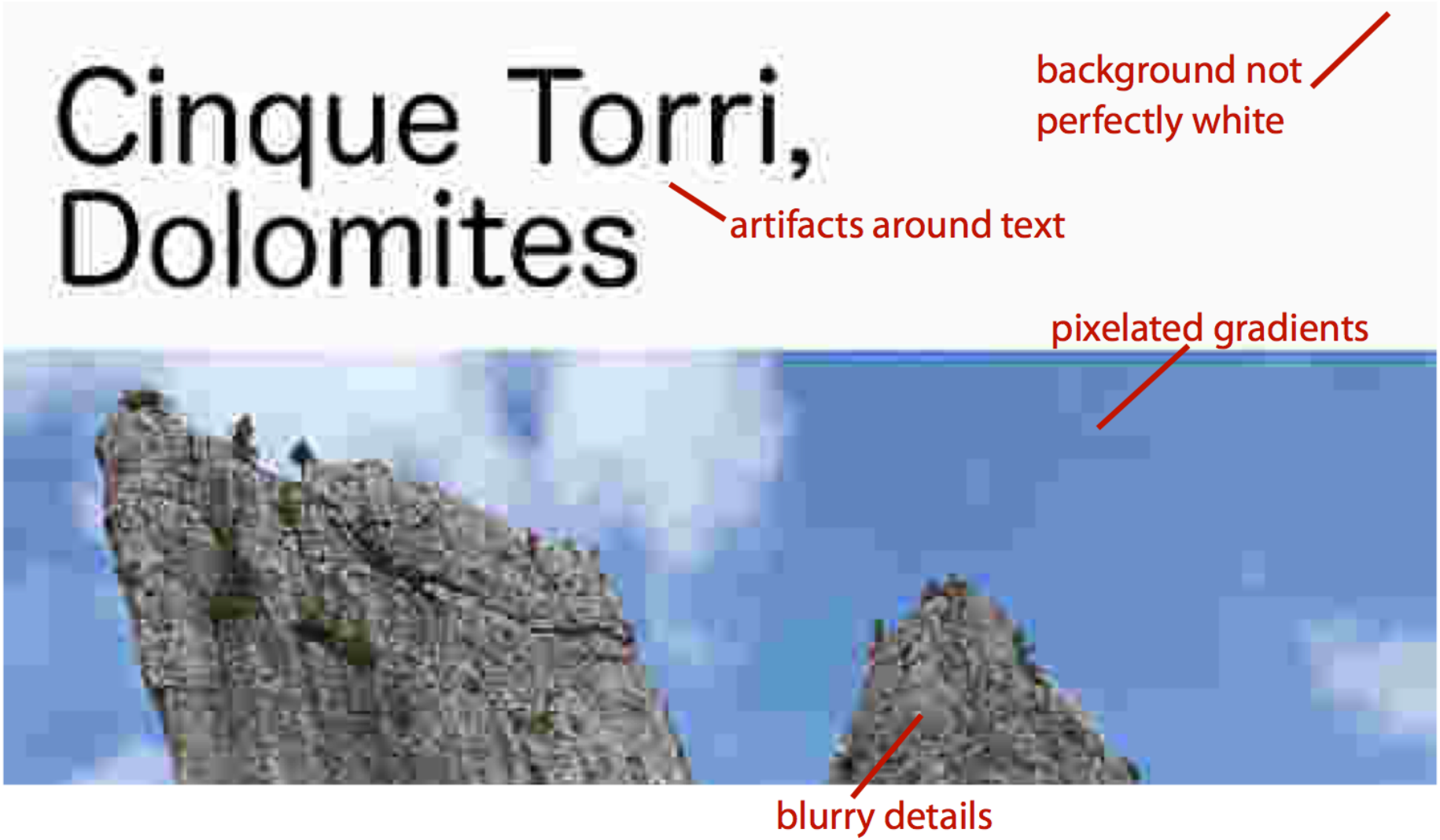


81KB

43KB

25KB

Lossless and lossy compression of bitmaps



Converting between image formats

- Can lose information
  - vector to bitmap
  - lossless to lossy
- Always store the original image in the format that maintains maximum resolution, accuracy, and flexibility
- PDF for data visualizations, or source code
- Store bitmaps in as high a resolution as possible, losslessly
- Convert these as necessary