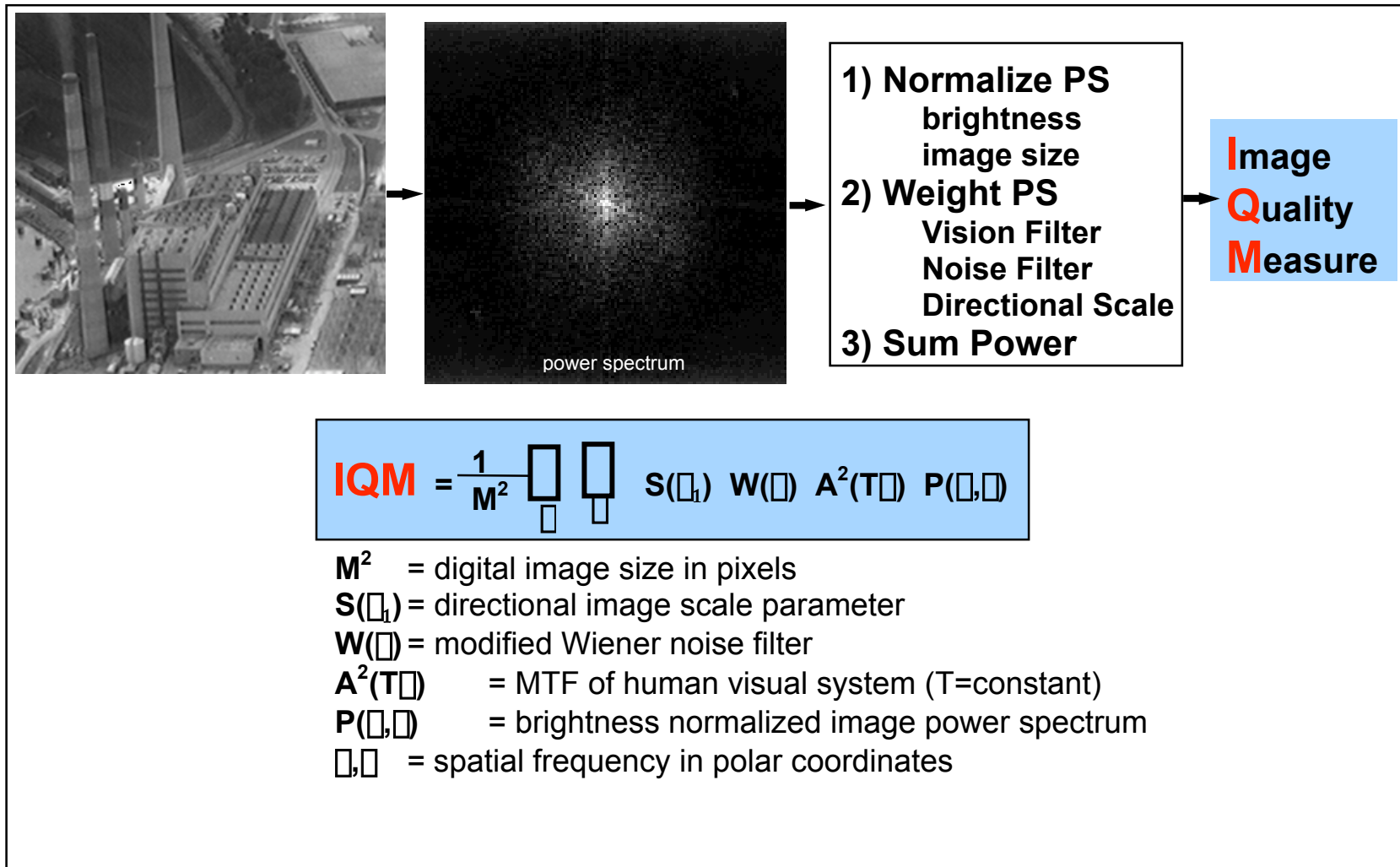


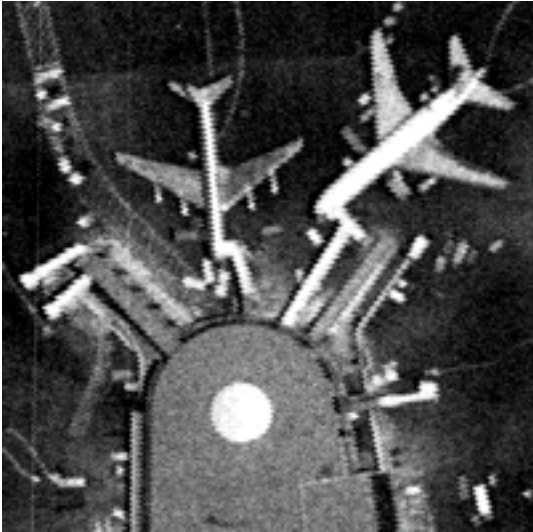
# IQM Approach: Obtain Quality from Image Power Spectrum



# Attributes of IQM

- **Measurement on operational images  
no test targets, no reference images, no prediction**
- **Rapid, automated, objective**
- **Correlates with visual quality assessments**
- **Image degradations detectable / identifiable  
from analysis of power spectrum**
- **Alternative subjective assessment is:  
variable  
time consuming  
labor intensive (\$)**

# Applications



## Reconnaissance

- Evaluate system performance
- Manage archive of collected imagery
- Set exploitation priorities
- Establish exploitation confidence level



## Forensics (Fingerprints)

- Optimize developing systems
- Maintain quality of fingerprint archives
- Operational quality assurance

# Applications



## Image Compression

Optimize compression via objective, rapid assessment of relative quality



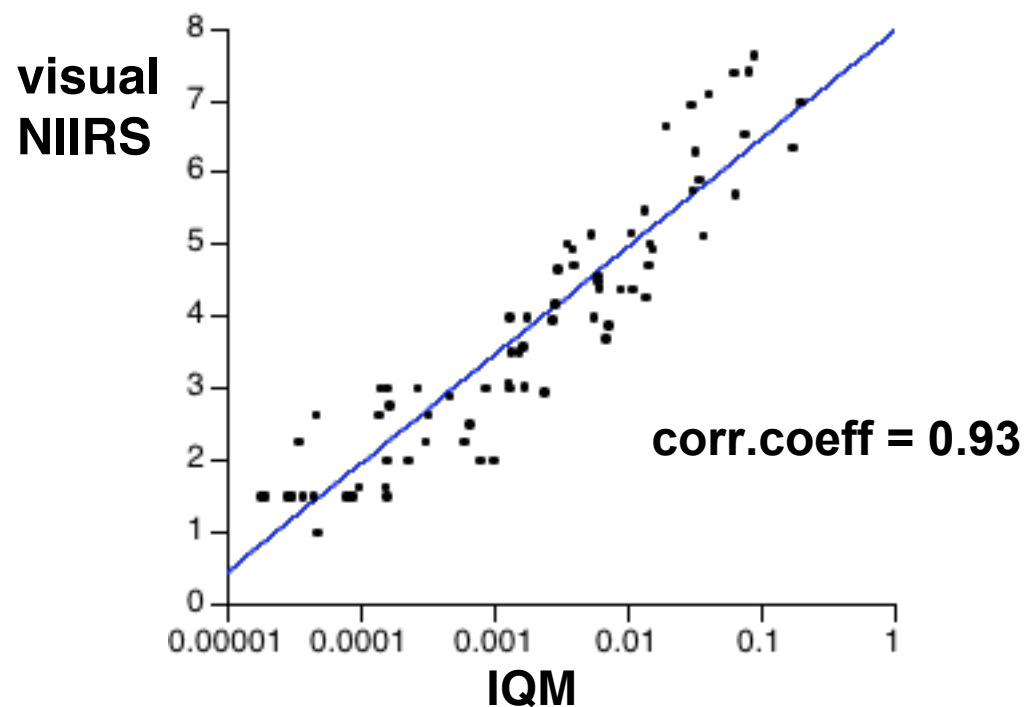
## Medical

Indicate quality reduction that may impair radiologist's tasks and reliability

MITRE

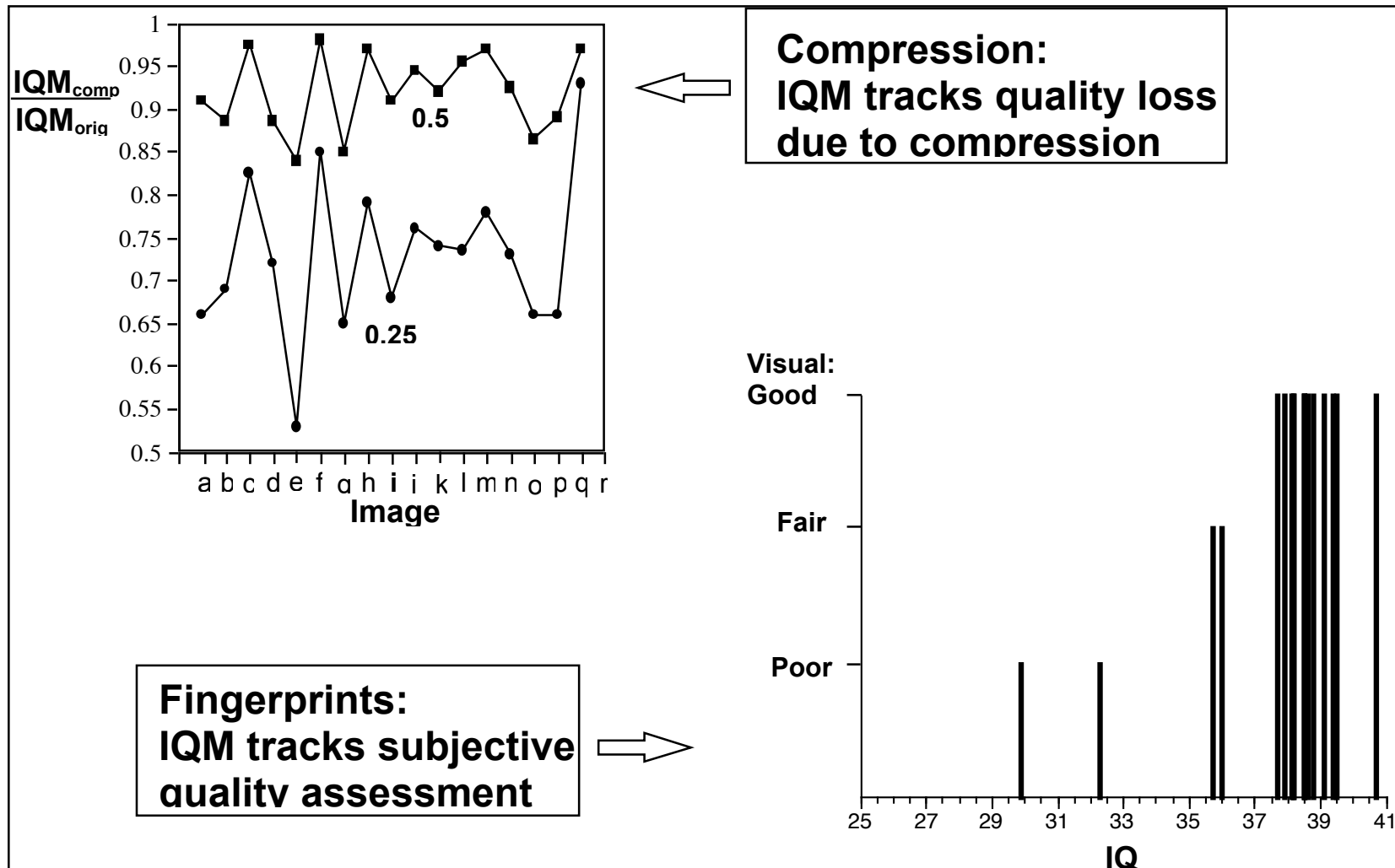
# Correlation: IQM vs. Visual NIIRS

**IQM demonstrates good correlation with visual NIIRS\***

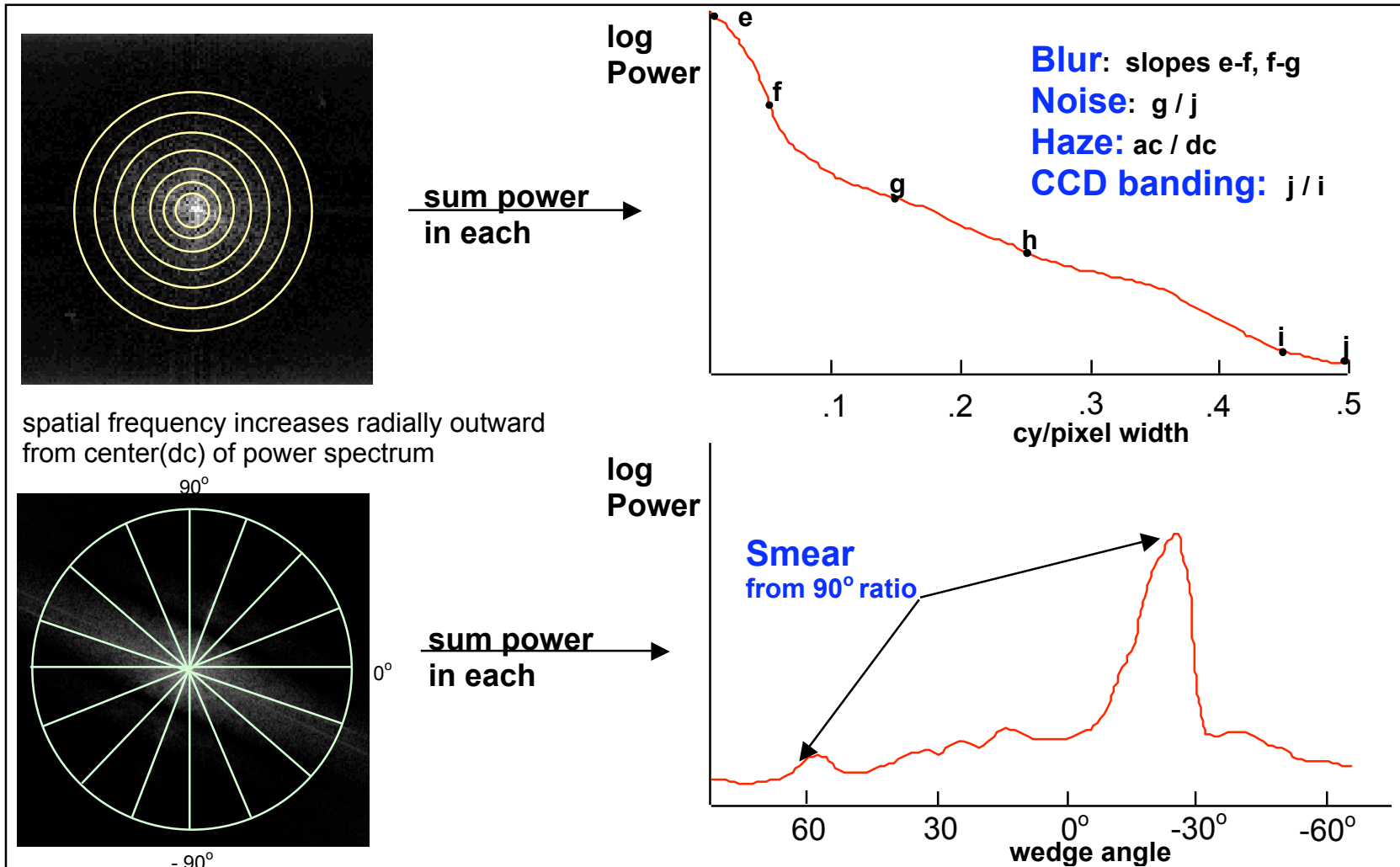


\* NIIRS is standard visual quality scale for reconnaissance

# Results: Compression and Fingerprints



# Image Degradations Detected By Power Spectrum



# More Details

## Technical Publication:

**"Objective Image Quality Measure Derived from Digital Image Power Spectra"**  
by N.B. Nill and B.H. Bouzas, April 1992,  
Optical Engineering, vol.31, pp.813-825.

## Website:

[www.mitre.org/tech/mtf](http://www.mitre.org/tech/mtf)