1,2

1

3

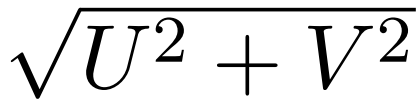
uv



-2^{15}

u

v



$B = 1/r^2$

$B = 1/r^3$



$N = 19$

$N = 34$

$$V(u,v) = \mathrm{FT}\left\{B_{\mathrm{primary}} . I_{\mathrm{source}}\right\}(u,v) + N$$

$$\mathrm{FT}\left\{F\right\}(u,v)$$

F

(u, v)




B_{primary}

N

$V(u, v)$

$$V = \mathrm{FT}\left\{B_{\mathrm{primary}} \cdot I_{\mathrm{source}}\right\}$$

S

$S(u, v) = 1/\sigma^2$

σ

$$S(u, v) = 0$$

$$B_{\text{dirty}} = \text{FT}^{-1}\{S\}$$

$$I_{\text{dirty}} = \text{FT}^{-1}\left\{S.V\right\}.$$

$$I_{\text{dirty}} = B_{\text{dirty}} * \left\{ B_{\text{primary}} . I_{\text{source}} \right\},$$

*

$$\{B_{\text{primary}} \cdot I_{\text{source}}\} = I_{\text{point}}$$

$$I_{\text{dirty}} = B_{\text{dirty}} . I_{\text{point}} = B_{\text{dirty}}$$

$I_{\text{point}} = 1$

$\left(1/\sigma^2\right)$

$W(u, v)$





$$B_{\text{dirty}} = \text{FT}^{-1}\left\{W.S\right\}$$

$$I_{\text{dirty}} = \text{FT}^{-1}\left\{W.S.V\right\}.$$

W

$W.S$

$W = 1$

$$W = \exp\left\{ -\frac{\left(u^2 + v^2\right)}{t^2} \right\},$$

0.5σ





$0 < \gamma < 2$

$$\propto (1-\gamma)^{n_{\mathrm{comp}}}$$

n_{comp}

$\gamma \simeq 0.1 - 0.2$

$2 \times 55''$

$2 \times 22''$

$$\mathrm{FT}\left\{F\right\}\left(f\right)$$

u, v

$$V(u=0,v=0) \overset{\mathrm{FT}}{\rightleftharpoons} \sum_{ij \ \in \ \mathrm{image}} \left\{ B_{\mathrm{primary}} . I_{\mathrm{source}} \right\}_{ij} .$$

$$V(u=0, v=0)$$

$$M(\alpha,\delta) = \frac{\sum_i \frac{B_i(\alpha,\delta)}{\sigma_i^2} F_i(\alpha,\delta)}{\sum_i \frac{B_i(\alpha,\delta)^2}{\sigma_i^2}},$$

$M(\alpha, \delta)$

(α, δ)

B_i

i

F_i

σ_i

$N(\alpha, \delta)$



(α, β)

$$N(\alpha,\delta) = \frac{\sum_i \frac{B_i(\alpha,\delta)}{\sigma_i^2}\, N_i(\alpha,\delta)}{\sum_i \frac{B_i(\alpha,\delta)^2}{\sigma_i^2}},$$

$$\sigma(\alpha,\delta) = \frac{\sqrt{\sum_i \frac{B_i(\alpha,\delta)}{\sigma_i^2}}}{\sum_i \frac{B_i(\alpha,\delta)^2}{\sigma_i^2}} = \frac{1}{\sqrt{\sum_i \frac{B_i(\alpha,\delta)^2}{\sigma_i^2}}}$$

$M(\alpha, \beta)/\sigma(\alpha, \beta)$

$1/\sigma^2$

D

$D = 30$

d

$d = 15$

$\sim d$

$D \geq d$

$$I^{\mathrm{sd}}_{\mathrm{meas}} = B_{\mathrm{sd}} \star I_{\mathrm{source}} + N,$$



$$I^{\rm int}_{\rm meas} = B_{\rm dirty} \star \{B_{\rm primary} . I_{\rm source}\} + N,$$



$B_{\text{primary}} \cdot I_{\text{source}}$

$$I^{\text{int}}_{\text{clean}} = B_{\text{clean}} \star I_{\text{source}} + N',$$



N'

$$I^{\text{int}}_{\text{clean}} = \text{Highpass-filter}\left\{B_{\text{clean}} \star I_{\text{source}}\right\} + N'.$$


$I^{\text{int}}_{\text{clean}}$

$$V(u,v) = \left\{ \mathrm{FT}(B_{\mathrm{primary}}) \star \mathrm{FT}(I_{\mathrm{source}}) \right\}(u,v) + N.$$

$D - d$

$= 30\,\mathrm{m} - 15\,\mathrm{m}$

$D = d$

$1.25d$

$2.5d$

$\alpha_{2000} = 05 : 40 : 54.270$

$\beta_{2000} = -02:28:00.00$