Results of dcpam are compared with MGS^1 - TES^2 and MRO^3 - MCS^4 data. MGS-TES and MRO-MCS data used for comparison are those in $MY26^5$ and MY30. Those observational data are downloaded from the PDS^6 .

¹Mars Global Surveyor

²Thermal Emission Spectrometer

³Mars Reconnaissance Orbiter ⁴Mars Climate Sounder

⁵MY stands for Mars Year

⁶Planetary Data System



Figure 1: Daily mean dust optical depth prescribed in dcpam



Figure 2: Double of dust optical depth observed by MGS-TES in MY26 \$2\$



Figure 3: Daily mean maximum height of dust distribution prescribed in dcpam





Figure 4: DustDensScledOptDep at 03 LST and Ls=0°-30° by dcpam



Figure 7: DustDensScledOptDep at 03 LST and Ls= 0° - 30° by MRO



03 LST and Ls= $30^{\circ}-60^{\circ}$ by dcpam



03 LST and Ls= $60^{\circ}\text{-}90^{\circ}$ by dcpam

Figure 5: DustDensScledOptDep at Figure 8: DustDensScledOptDep at 03 LST and Ls= $30^{\circ}-60^{\circ}$ by MRO



Figure 6: DustDensScledOptDep at Figure 9: DustDensScledOptDep at 03 LST and Ls= $60^{\circ}-90^{\circ}$ by MRO





03 LST and Ls=90°-120° by dcpam





dust Vensity scaled opacity at 463 cm-1 (Pa) E-2 Eair_pressure EC E1 E2 E3 L -30 0 30 lat

03 LST and Ls= $120^{\circ}-150^{\circ}$ by dcpam



Figure 11: DustDensScledOptDep at Figure 14: DustDensScledOptDep at 03 LST and Ls= $120^{\circ}-150^{\circ}$ by MRO



Figure 12: DustDensScledOptDep at Figure 15: DustDensScledOptDep at

03 LST and Ls=150°-180° by dcpam $\,$ 03 LST and Ls=150°-180° by MRO $\,$



Figure 16: DustDensScledOptDep at 03 LST and Ls= $180^{\circ}-210^{\circ}$ by dcpam



Figure 19: DustDensScledOptDep at 03 LST and Ls=180°-210° by MRO



03 LST and Ls= $210^{\circ}-240^{\circ}$ by dcpam



03 LST and Ls= 240° - 270° by dcpam 03 LST and Ls= 240° - 270° by MRO

Figure 17: DustDensScledOptDep at Figure 20: DustDensScledOptDep at 03 LST and Ls= $210^{\circ}-240^{\circ}$ by MRO



Figure 18: DustDensScledOptDep at Figure 21: DustDensScledOptDep at



Figure 22: DustDensScledOptDep at 03 LST and Ls= 270° - 300° by dcpam



Figure 25: DustDensScledOptDep at 03 LST and Ls=270°-300° by MRO



03 LST and Ls= 300° - 330° by dcpam



Figure 23: DustDensScledOptDep at Figure 26: DustDensScledOptDep at 03 LST and Ls=300°-330° by MRO



Figure 24: DustDensScledOptDep at Figure 27: DustDensScledOptDep at 03 LST and Ls=330°-360° by dcpam $\,$ 03 LST and Ls=330°-360° by MRO $\,$





15 LST and Ls=0°-30° by dcpam



Figure 28: DustDensScledOptDep at Figure 31: DustDensScledOptDep at 15 LST and Ls=0°-30° by MRO



15 LST and Ls= $30^{\circ}-60^{\circ}$ by dcpam



15 LST and Ls=60°-90° by dcpam

Figure 29: DustDensScledOptDep at Figure 32: DustDensScledOptDep at 15 LST and Ls= $30^{\circ}-60^{\circ}$ by MRO



Figure 30: DustDensScledOptDep at Figure 33: DustDensScledOptDep at 15 LST and Ls= $60^{\circ}-90^{\circ}$ by MRO



15 LST and Ls=90°-120° by dcpam



Figure 34: DustDensScledOptDep at Figure 37: DustDensScledOptDep at 15 LST and Ls=90°-120° by MRO



15 LST and Ls= $120^{\circ}-150^{\circ}$ by dcpam



15 LST and Ls=150°-180° by dcpam $\,$ 15 LST and Ls=150°-180° by MRO $\,$

Figure 35: DustDensScledOptDep at Figure 38: DustDensScledOptDep at 15 LST and Ls= 120° - 150° by MRO



 $\label{eq:Figure 36: DustDensScledOptDep at Figure 39: DustDensScledOptDep at$



Figure 40: DustDensScledOptDep at Figure 43: DustDensScledOptDep at 15 LST and Ls= 180° - 210° by dcpam



15 LST and Ls=180°-210° by MRO



15 LST and Ls= $210^{\circ}-240^{\circ}$ by dcpam



Figure 41: DustDensScledOptDep at Figure 44: DustDensScledOptDep at 15 LST and Ls= $210^{\circ}-240^{\circ}$ by MRO



15 LST and Ls=240°-270° by dcpam $\,$ 15 LST and Ls=240°-270° by MRO $\,$

 $\label{eq:Figure 42: DustDensScledOptDep at Figure 45: DustDensScledOptDep at$



15 LST and Ls= 270° - 300° by dcpam



Figure 46: DustDensScledOptDep at Figure 49: DustDensScledOptDep at 15 LST and Ls=270°-300° by MRO



15 LST and Ls= 300° - 330° by dcpam



Figure 47: DustDensScledOptDep at Figure 50: DustDensScledOptDep at 15 LST and Ls=300°-330° by MRO



 $\label{eq:Figure 48: DustDensScledOptDep at Figure 51: DustDensScledOptDep at$

15 LST and Ls=330°-360° by dcpam $\,$ 15 LST and Ls=330°-360° by MRO $\,$





Figure 52: $\mathrm{T_s}$ at 02 LST by dcpam



Figure 54: $\mathrm{T_s}$ at 02 LST by MGS



Figure 53: $\mathrm{T_s}$ at 14 LST by dcpam

Figure 55: $\mathrm{T_s}$ at 14 LST by MGS





Figure 56: T at 18 Pa and at 02 LST by dcpam



Figure 60: T at 18 Pa and at 02 LST by MGS $\,$



Figure 57: T at 50 Pa and at 02 LST by dcpam



Figure 61: T at 50 Pa and at 02 LST by MGS



Figure 58: T at 136 Pa and at 02 LST by dcpam



Figure 62: T at 136 Pa and at 02 LST by MGS



13

Figure 59: T at 370 Pa and at 02 LST by dcpam

Figure 63: T at 370 Pa and at 02 LST by MGS



air_temperature_at_14_LST

Figure 64: T at 18 Pa and at 14 LST by dcpam



Figure 68: T at 18 Pa and at 14 LST by MGS $\,$



Figure 65: T at 50 Pa and at 14 LST by dcpam



Figure 69: T at 50 Pa and at 14 LST by MGS



Figure 66: T at 136 Pa and at 14 LST by dcpam



Figure 70: T at 136 Pa and at 14 LST by MGS $\,$



14

Figure 67: T at 370 Pa and at 14 LST by dcpam

Figure 71: T at 370 Pa and at 14 LST by MGS



Ls= $0^{\circ}-30^{\circ}$ by dcpam

Figure 72: Temp at 02 LST and Figure 75: Temp at 02 LST and $Ls=0^{\circ}-30^{\circ}$ by MGS

120



Ls=30air_temperature_at_02_LST (hPa) E1 _____ E2 180 160 140 120 E3 60 (degrees_no lat

 $Ls=30^{\circ}-60^{\circ}$ by dcpam

Figure 73: Temp at 02 LST and Figure 76: Temp at 02 LST and $Ls=30^{\circ}-60^{\circ}$ by MGS



Figure 74: Temp at 02 LST and Figure 77: Temp at 02 LST and Ls=60°-90° by dcpam

Ls=60°-90° by MGS





Ls=90°-120° by dcpam

Figure 78: Temp at 02 LST and Figure 81: Temp at 02 LST and $Ls=90^{\circ}-120^{\circ}$ by MGS





Figure 79: Temp at 02 LST and Figure 82: Temp at 02 LST and $Ls=120^{\circ}-150^{\circ}$ by dcpam

Ls=150-180 temperature

(Pa) E1

evel E2

E3



 $Ls=120^{\circ}-150^{\circ}$ by MGS

 $Ls=150^{\circ}-180^{\circ}$ by dcpam

latitude

Figure 80: Temp at 02 LST and Figure 83: Temp at 02 LST and Ls=150°-180° by MGS





 $Ls=180^{\circ}-210^{\circ}$ by dcpam

Figure 84: Temp at 02 LST and Figure 87: Temp at 02 LST and $Ls=180^{\circ}-210^{\circ}$ by MGS



Ls=2101-249mperature_at_02_LST (hPa) E1 <u>}</u> E2 180 160 140 120 E3 60 (degrees_n lat

Figure 85: Temp at 02 LST and Figure 88: Temp at 02 LST and $Ls=210^{\circ}-240^{\circ}$ by dcpam



 $Ls=240^{\circ}-270^{\circ}$ by dcpam

 $Ls=210^{\circ}-240^{\circ}$ by MGS



Figure 86: Temp at 02 LST and Figure 89: Temp at 02 LST and Ls=240°-270° by MGS





 $Ls=270^{\circ}-300^{\circ}$ by dcpam

Figure 90: Temp at 02 LST and Figure 93: Temp at 02 LST and $Ls=270^{\circ}-300^{\circ}$ by MGS



Ls=300r_temperature_at_02_LST (hPa) E1 220 <u>}</u> E2 200 180 160 140 120 5 E3 E

lat

60 (degrees_n

Figure 91: Temp at 02 LST and Figure 94: Temp at 02 LST and $Ls=300^{\circ}-330^{\circ}$ by dcpam

(Pa) E1

evel es

E3



Ls=330°-360° by dcpam

 $Ls=300^{\circ}-330^{\circ}$ by MGS



Figure 92: Temp at 02 LST and Figure 95: Temp at 02 LST and Ls=330°-360° by MGS



Figure 96: Temp at 14 LST and Figure 99: Temp at 14 LST and

lat



E3

 $Ls=0^{\circ}-30^{\circ}$ by MGS



 $Ls=30^{\circ}-60^{\circ}$ by dcpam

latitude

Figure 97: Temp at 14 LST and Figure 100: Temp at 14 LST and $Ls=30^{\circ}-60^{\circ}$ by MGS



Figure 98: Temp at 14 LST and Figure 101: Temp at 14 LST and Ls=60°-90° by dcpam

Ls=60°-90° by MGS





Ls=90°-120° by dcpam

Figure 102: Temp at 14 LST and Figure 105: Temp at 14 LST and $Ls=90^{\circ}-120^{\circ}$ by MGS



Ls=120r_15mperature_at_14_LST (hPa) E1 240 220 200 180 160 140 120 _____ E2 5 E3 E lat

 $Ls=120^{\circ}-150^{\circ}$ by dcpam





Ls=150°-180° by dcpam



Figure 104: Temp at 14 LST and Figure 107: Temp at 14 LST and Ls=150°-180° by MGS



240 220 200 180 160 140 120 lat

Ls= 180° - 210° by dcpam





Ls=2101-249mperature_at_14_LST (hPa) E1 220 <u>}</u> E2 200 180 160 140 120 E3 60 (degrees_r lat

 $Ls=210^{\circ}-240^{\circ}$ by dcpam





Ls=240°-270° by dcpam







 $Ls=270^{\circ}-300^{\circ}$ by dcpam

Figure 114: Temp at 14 LST and Figure 117: Temp at 14 LST and $Ls=270^{\circ}-300^{\circ}$ by MGS



Ls=300r_temperature_at_14_LST (hPa) E1 <u>}</u> E2 180 160 140 120 E3 60 (degrees_n lat

 $Ls=300^{\circ}-330^{\circ}$ by dcpam





Ls=330°-360° by dcpam





Ls= $0^{\circ}-30^{\circ}$ by dcpam

Figure 120: Temp at 03 LST and Figure 123: Temp at 03 LST and $Ls=0^{\circ}-30^{\circ}$ by MRO



Ls=30-60 t_AM (Pa) E-2 Eair_pressure E0 220 200 180 160 140 120 E1 E2 E3 L ou 90 (degrees_north)

 $Ls=30^{\circ}-60^{\circ}$ by dcpam

Figure 121: Temp at 03 LST and Figure 124: Temp at 03 LST and $Ls=30^{\circ}-60^{\circ}$ by MRO

lat



Ls=60°-90° by dcpam

Figure 122: Temp at 03 LST and Figure 125: Temp at 03 LST and Ls=60°-90° by MRO



Ls=90°-120° by dcpam

Figure 126: Temp at 03 LST and Figure 129: Temp at 03 LST and $Ls=90^{\circ}-120^{\circ}$ by MRO



Ls=120-150 t_AM (Pa) E-2 Eair_pressure 220 EO 200 180 160 140 120 E1 E2 E3 ou 90 (degrees_north) lat

 $Ls=120^{\circ}-150^{\circ}$ by dcpam



t_AM



Figure 128: Temp at 03 LST and Figure 131: Temp at 03 LST and Ls=150°-180° by dcpam



Ls=150°-180° by MRO





Ls= 180° - 210° by dcpam

Figure 132: Temp at 03 LST and Figure 135: Temp at 03 LST and $Ls=180^{\circ}-210^{\circ}$ by MRO





 $Ls=210^{\circ}-240^{\circ}$ by dcpam

Figure 133: Temp at 03 LST and Figure 136: Temp at 03 LST and $Ls=210^{\circ}-240^{\circ}$ by MRO

40 20

60 (degrees



Ls=240°-270° by dcpam







Ls= 270° - 300° by dcpam

Figure 138: Temp at 03 LST and Figure 141: Temp at 03 LST and $Ls=270^{\circ}-300^{\circ}$ by MRO





Figure 139: Temp at 03 LST and Figure 142: Temp at 03 LST and $Ls=300^{\circ}-330^{\circ}$ by dcpam



t_AM

Ls=330-360

E3 L



(Pa) E-2 E-1 air_pressure 180 160 140 E2

lat

120

60 (degrees_r

Ls=330°-360° by dcpam





 $Ls=0^{\circ}-30^{\circ}$ by dcpam

Figure 144: Temp at 15 LST and Figure 147: Temp at 15 LST and $Ls=0^{\circ}-30^{\circ}$ by MRO



Ls=30-60 t_PM (Pa) E-2 Eair_pressure 220 EO 200 180 160 140 120 E1 E2 E3 (degrees_north) lat

 $Ls=30^{\circ}-60^{\circ}$ by dcpam

Figure 145: Temp at 15 LST and Figure 148: Temp at 15 LST and $Ls=30^{\circ}-60^{\circ}$ by MRO



Figure 146: Temp at 15 LST and Figure 149: Temp at 15 LST and Ls=60°-90° by dcpam

Ls=60°-90° by MRO



Figure 150: Temp at 15 LST and Figure 153: Temp at 15 LST and Ls=90°-120° by dcpam

 $Ls=90^{\circ}-120^{\circ}$ by MRO



Ls=120-150 t_PM (Pa) E-2 Eair_pressure EO E1 180 160 140 120 E2 E3 4 (deal lat

 $Ls=120^{\circ}-150^{\circ}$ by dcpam



t_PM



200 180 160 140 120 60 (degrees_n lat

Ls=150°-180° by dcpam







Ls= 180° - 210° by dcpam







 $Ls=210^{\circ}-240^{\circ}$ by dcpam

Figure 157: Temp at 15 LST and Figure 160: Temp at 15 LST and $Ls=210^{\circ}-240^{\circ}$ by MRO

180 160 140

120



Ls=240°-270° by dcpam

Figure 158: Temp at 15 LST and Figure 161: Temp at 15 LST and Ls=240°-270° by MRO





Ls= 270° - 300° by dcpam

Figure 162: Temp at 15 LST and Figure 165: Temp at 15 LST and $Ls=270^{\circ}-300^{\circ}$ by MRO





 $Ls=300^{\circ}-330^{\circ}$ by dcpam

Figure 163: Temp at 15 LST and Figure 166: Temp at 15 LST and Ls=300°-330° by MRO



Ls=330°-360° by dcpam

