NOMENCLATURE

Symbol	Description
$\vec{S_s}$	Cone center vector (-)
$\vec{t_s}$	Optic cone center (-)
A_a	Absorber area (m^2)
E_r	Error in coordinates (-)
$G_{b,T}$	Intensity of beam radiation on inclined surface (W/m^2)
G_b	Intensity of beam radiation on horizontal surface (W/m^2)
G_{on}	Extra-terrestrial radiation measured on the plane normal to the radiation on nth day (W/m^2)
G_{sc}	Solar constant (W/m^2)
I_{avg}	Average solar intensity on ground (KWh/m^2/day)
L_{Cell_BRS}	Length of unit cell on BRS (m)
L_{Cell_TIS}	Length of unit cell on TIS (m)
N_d	Number of daylight hours (hr)
N_n	Total number of run for n samples (-)
R_s	Receiver's rotating axis (-)
S_n	Surface area for the nth reflector (m^2)
$\vec{u}$	Normal vector to the plane (-)
W_i^j	Total amount of energy interchange between the two surfaces, i to j (W/m²)
R_{an}	Beam ray incident from the TIS for the CAD model (-)
A_{BRS}	Area of BRS (m^2)
A_S	Area of TIS when its shape is square (m^2)
B	Length of the single side of the BRS (m)
E	Hemispherical black body power (W/m²)
H	Vertical height of the FPSRS (m)
i, j	Number of reflection (-)
I_{BRS}	Solar intensity received at BRS (W/m^2)
I_{TIS}	Solar intensity entering from the TIS (W/m^2)
N	Optimum grid number (-)
N_{BRS}	Number of rays reaching to BRS (-)
N_{Cell}	Number of cell on the TIS (-)
N_{TIS}	Number of rays incoming from the TIS (-)

R^2	Coefficient of determination (-)
T	Time (hr)
T	Line coefficient (-)

Greek letter

$\overrightarrow{\eta_H}$	Heliostat global axis (-)
α_L	Altitude angle (°)
γ_s	Surface azimuthal angle (°)
δ_E	Error (%)
δ_{ij}	Kronecker delta (-)
δ_{max}	Maximum variation present in E_r for the case and angle (%)
η_{opt}	Optical efficiency (%)
η_{thr}	Thermal efficiency (%)
θ_H	Angle between beam ray to horizontal surface (°)
θ_Z	Zenith angle (°)
θ_L	Angle between the two lines (°)
ω_s	Sunset hour angle (°)
Φ_L	Latitude angle (°)
$\bar{X}$	Population mean (-)
β	Angle between the reflected ray and normal of the reflecting plane (°)
δ	Declination angle (°)
θ	Solar incident angle (°)
λ	Longitude angle (°)
ρ	Reflectivity (-)
σ	Sample variance (-)
χ	Uncertainty (%)
ω	Hour angle (°)
Φ	Angle made by reflector to the horizontal plane (°)

Abbreviation

ATFMSC	Azimuth tracking fixed mirror solar concentrators
BRS	Bottom receiving surface
CAD	Computer added design
CM	Conventional method
CRM	Collective ray method
CTR	Curved type reflector

CVRMSE	Coefficient of variation of root-mean-square error
D	Dimensional model
DHI	Direct horizontal irradiation
DNI	Direct normal irradiation
EGR	Effective grid reduction ratio
FPSRS	Flat plate solar reflecting unit
GGI	Global grid independence
GHI	Global horizontal irradiation
HTC	Hexagonal type configuration
HTF	Heat transfer fluid
ISP	Intersecting point on the reflector
LC	Length of characteristic
LGI	Local grid independence
MCOM	Monte Carlo optimization method
MRRP	Multiple ray reflection procedure
NPA	Non-Participating area
NRES	Non-Renewable energy source
OCR	Optical concentration ratio
OSR	Octagonal shaped receiver
OTC	Octagonal type configuration
P	Intersection point of ray and reflector
p	Elements in the selected samples
PA	Participating area
P_{NR}	Intersection point of ray and neighbour reflector
P_{OR}	Intersection point of ray and opposite reflector
R	Reflector
R^2	Coefficient of determination
RARM	Radiation area reflection method
RDP	Ray distribution profile
RES	Renewable energy source
RMSE	Root-mean-square error
RTA	Ray tracing algorithm
RTS	Ray tracing simulation
SCS	Solar collector system
SLR	Shadow light reflection

SRS	Simple random sampling
SS	Summer solstice
STC	Square type configuration
STS	Solar thermal system
TIS	Top imaginary surface
WS	Winter solstice