

PART 1 - GENERAL (GEN)**GEN 2 TABLES and CODES****GEN 2.1 MEASURING SYSTEM, AIRCRAFT MARKINGS, HOLIDAYS****1. UNITS OF MEASUREMENT**

1.1. Aeronautical stations within Khartoum FIR for air and ground operations will use the table of units' measurement shown below.

Measurement of	Units
Distance used in navigation, position report etc – generally in excess of 2 or 3 nautical miles	Nautical miles and tenths
Relatively short distances such as those relating to aerodromes (eg runway lengths)	Meters
Altitudes, elevations and heights	Feet and Flight Levels
Horizontal speed including wind speed	Knots
Vertical speed	Feet per minute
Wind direction for landing and taking off	Degrees Magnetic
Wind direction except for landing and taking off	Degrees True
Visibility < 5000 meters (including RVR)	Meters
Visibility > 5000 meters	Kilometers
Altimeter setting	Hectopascals
Temperature	Degrees Celsius (Centigrade)
Weight/mass	Metric tons or kilograms
Date/Time	Year, Month, Day, Hour and Minute, the day of 24 hours beginning at midnight Co-ordinated Universal Time
* International nautical miles, for which conversion into meters is given by 1 international nautical mile = 1852 meters.	

2. TIME SYSTEM**2.1. General.**

Co-ordinated Universal Time (UTC) is used by air navigation services and in publications issued by the Aeronautical Information Service. Reporting of time is expressed to the nearest minute, e.g. 12:40:35 is reported as 1241.

3. GEODETIC REFERENCE DATUM**3.1. Name/designation of datum.**

All published geographical coordinates indicating latitude and longitude are expressed in terms of the World Geodetic System - 1984 (WGS-84) geodetic reference datum.

3.2. Use of asterisk to identify published geographical coordinates.

An asterisk (*) will be used to identify those published geographical coordinates, which have been transformed into WGS-84 coordinates but whose accuracy of original field work does not meet the requirements in ICAO Annex 11, Chapter 2 and ICAO Annex 14, Volumes 1 and H, Chapter 2. Specification for determination and reporting of WGS-84 coordinates are given in ICAO Annex 11, Chapter 2 and in ICAO Annex 14, Volumes 1 and Chapter 2.

4. AIRCRAFT NATIONALITY AND REGISTRATOIN MARKS

The nationality mark for aircraft registered in South Sudan is the Z8. The nationality mark is followed by a hyphen and registration mark consisting of 1-5 letters, e.g. Z8-AAA.

5. PUBLIC HOLIDAYS

The following is a list of national public holidays:

Date	Name of Holiday
January 1	New Years Day
Varies each year	Good Friday
Varies each year	Holy Saturday
Varies each year	Easter Sunday
May 1	Labour Day
July 9	Independence Day
July 30	Martyrs Day
Varies each year	Eid al-Fitr
Varies each year	Eid al-Adha
December 24	Christmas Eve
December 25	Christmas Day
December 26	Boxing Day
December 28	Republic Day

GEN 2.2 ABBREVIATIONS USED IN AIS PUBLICATIONS

Abbreviations marked by an asterisk (*) are either different from or not contained in ICAO Doc 8400

A	
A/A	Air-to-air
A/G	Air-to-Ground
AAA	(or AAB, AAC....etc, in sequence) Amended meteorological message (message type designator)
AAL	Above Aerodrome Level
AAR	Air to Air Refueling
ABM	Abeam
ABN	Aerodrome Beacon
ABV	Above
ACARS	Aircraft Communications Addressing And Reporting System
ACAS	Airborne Collision Avoidance Systems
ACC	Area Control Centre OR Area Control
ACCID	Notification of an Aircraft Accident
ACFT	Aircraft
ACK	Acknowledge
ACL	Altimeter Check Location
ACT	Active OR Activated OR Activity
AD	Aerodrome
ADA	Advisory Area
ADF	Automatic Direction-Finding Equipment
ADIZ	(to be pronounced 'AY-DIZ') Air Defense Identification Code
ADS-B	Automatic Dependent Surveillance - Broadcast
ADS-C	Automatic Dependent Surveillance - Contract
ADSU	Automatic Dependent Surveillance Unit
ADVS	Advisory Service
Aerodrome Approach:	That part of an Instrument Approach Procedure commencing at the designated height over the radio aid to be used and ending when the aircraft has broken cloud.
AFIL	Flight Plan Filed in the Air
AFIS	Aerodrome Flight Information Service
AFS	Aeronautical Fixed Service
AFTN	Aeronautical Fixed Telecommunication Network
AGL	Above Ground Level
AIC	Aeronautical Information Circular
AIM	Aeronautical Information Management
AIP	Aeronautical Information Publication
AIRAC	Aeronautical Information Regulation and Control
AIREP	Air-Report

AIS	Aeronautical Information Services
ALA	Alighting Area
ALERFA	Alert Phase
ALR	Alerting (message type designator)
ALRS	Alerting Service
ALS	Approach Lighting System
ALT	Altitude
ALTN	Alternate (Aerodrome)
AMA	Area Minimum Altitude
AMD	Amend OR Amended (used to indicate amended meteorological message; message type designator)
AMDT	Amendment (AIP Amendment)
AMS	Aeronautical Mobile Service
AMSL	Above Mean Sea Level
AMSS	Aeronautical Mobile Satellite Service
ANSP	Air Navigation Service Provider
AOC	Air Operator Certificate
AP	Airport
APAPI	Abbreviated Precision Approach Path Indicator
APCH	Approach
APP	Approach Control Office OR Approach Control OR Approach Control Service
APRX	Approximate OR Approximately
ARO	Air Traffic Services Reporting Office
ARP	Air-Report (message type designator)
ARR	Arrival (message type designator)
ARST	Arresting (Specify (part of) Aircraft Arresting Equipment)
ASC	Ascent to OR Ascending to
ASDA	Accelerate-Stop Distance Available
ASHTAM	Special series of NOTAM notifying, by means of specific format, change in activity of a volcano, a volcano eruption and/or volcanic ash cloud that is of significance to aircraft operations
ASPH	Asphalt
ATC	Air Traffic Control (in general)
ATC Surveillance Minimum Altitude Area:	A defined area in the vicinity of an aerodrome, in which the minimum safe levels allocated by a controller vectoring IFR flights with Surveillance equipment have been predetermined.
ATD	Actual Time of Departure
ATFM	Air Traffic Flow Management
ATIS	Automatic Terminal Information Service
ATM	Air Traffic Management
ATN	Aeronautical Telecommunication Network

ATS	Air Traffic Service
ATZ	Aerodrome Traffic Zone
AU	Airspace Utilization
AUW	All Up Weight
AUX	Auxiliary
AVBL	Available OR Availability
AVGAS	Aviation Gasoline
AWY	Airway
AZM	Azimuth

B	
BA	Braking Action
BCN	Beacon (Aeronautical ground light)
BDRY	Boundary
BFR	Before
BKN	Broken
BLO	Below Clouds
BLW	Below...
BR	Mist
BRF	Short (Used to indicate the type of approach desired or required)
BRG	Bearing
BRKG	Braking
BS	Commercial Broadcasting Station
BTL	Between Layers
BTN	Between

C	
C	Degrees Celsius (Centigrade)
CAA*	Civil Aviation Authority
CAT	Clear Air Turbulence
CAVOK	(To be pronounced 'KAV-OH-KAY') Visibility, cloud and present weather better than prescribed values or conditions
CC	<i>Counter Clockwise</i>
CDN	Co-ordination (message type designator)
CDO*	Continuous Descent Operation
CH	Channel
CHG	Modification (message type designator)
CI	Cirrus
CIDIN	Common ICAO Data Interchange Network
CIV	Civil
CL	Centre-Line
CLBR	Calibration

CLG	Calling
Cloud Ceiling:	In relation to an aerodrome, the distance measured vertically from the notified elevation of the aerodrome to the lowest part of any cloud visible from the aerodrome which is sufficient to obscure more than one half of the sky so visible.
CLR	Clear(s) OR Cleared to ... OR Clearance
CLSD	Close OR Closed OR Closing
CM	Centimeter
CMB	Climb to OR Climbing to
CMPL	Completion OR Completed OR Complete
CNL	Flight Plan Cancellation (message type designator)
CNS	Communications, Navigation and Surveillance
COM	Communications
Competent ATS Authority:	Means in relation to the Republic of South Sudan, the Civil Aviation Authority, and in relation to any other country the authority responsible under the law of that country for promoting the safety of civil aviation.
CONC	Concrete
COND	Condition
CONS	Continuous
CONST	Construction OR Constructed
CONT	Continue(s) OR Continued
COOR	Co-ordinate OR Co-ordination
COORD	Geographical Co-ordinates
COP	Change-Over Point
COR	Correct OR Correction OR Corrected (Used to indicate corrected meteorological message; message type designator)
COV	Cover OR Covered OR Covering
CPDLC	Controller to Pilot Data link
CPL	Current Flight Plan (message type designator)
CRZ	Cruise
CTA	Control Area
CTAM	Climb to and Maintain
CTC	Contact
CTL	Control
CTN	Caution
CTR	Control Zone
CUST	Customs
CWY	Clearway

D	
DA	Decision Altitude
D-ATIS	Data Link Automatic Terminal Information Service
DCKG	Docking
DCT	Direct (In relation to flight path clearances and type of approach)

DEG	Degrees
DEP	Departure (message type designator)
DER	Departure End of the Runway
DES	Descend to OR Descending to
DEST	Destination
DETRESFA	Distress Phase
DEV	Deviation OR Deviating
DF	Direction Finding
DFTI	Distance from Touchdown Indicator
DH	Decision Height
DIST	Distance
DIV	Divert OR Diverting
DLA	Delay OR Delayed
DLY	Daily
DME	Distance Measuring Equipment
DNG	Danger OR Dangerous
DOM	Domestic
DPT	Depth
DR	Dead Reckoning
DRG	During
Dropping Zone/Drop Zone:	Means the notified portion of airspace within which parachute descents are made.
DTAM	Descend to and Maintain
DTG	Date-Time Group
DU	Dust
DUC	Dense Upper Cloud
DUR	Duration
DVOR	Doppler VOR
DW	Dual Wheels

E	
EAT	Expected Approach Time
EDT*	Estimated Departure Time
EET	Estimated Elapsed Time
EFC	Expected Further Clearance
EFIS	Electronic Flight Instrument System
EHF	Extremely High Frequency (30000 to 300000 MHz)
ELBA	Emergency Location Beacon - Aircraft
ELEV	Elevation
ELR	Extra Long Range
ELT	Emergency Locator Transmitter (GEN 3.6.6)

EMBD	Embedded in a Layer (To indicate cumulonimbus embedded in layers of other clouds)
EMERG	Emergency
ENG	Engine
ENR	En-Route
EOBT	Estimated Off-Block Time
EQPT	Equipment
EST	Estimate OR Estimated OR Estimate (message type designator)
ETA	Estimated Time of Arrival OR Estimating Arrival
ETD	Estimated Time of Departure OR Estimating Departure
ETOPS*	Extended Twin-jet Operations
EXC	Except
EXER	Exercises OR Exercising OR To Exercise
EXP	Expect OR Expected OR Expecting
EXTD	Extend OR Extending

F	
FAC	Facilities
FAF	Final Approach Fix
FAP	Final Approach Point
FAS	Final Approach Segment
FATO	Final Approach and Take-off Area
FBL	Light (Used to indicate the intensity of weather phenomena, interference or static reports, eg FBL RA = Light rain)
FBO*	Fixed-base Operator
FCT	Friction Coefficient
FDPS	Flight Data Processing System
FIC	Flight Information Centre
FIR	Flight Information Region
FIS	Flight Information Service
FISA	Automated Flight Information Service
FL	Flight Level
FLG	Flashing
FLT	Flight
FLTCK	Flight Check
FLY	Fly OR Flying
FM	From
FMC	Flight Management Computer
FMS	Flight Management System
FMU	Flow Management Unit
FNA	Final Approach
FOD	Foreign Object Damage/Debris
FPL	Filed Flight Plan (message type designator)

FPM	Feet Per Minute
FPR	Flight Plan Route
FREQ	Frequency
FRNG	Firing
FRQ	Frequent
FSL	Full Stop Landing
FSS	Flight Service Station
FT	Feet (Dimensional Unit)

G	
G/A	Ground-to-Air
G/A/G	Ground-to-Air and Air-to-Ground
GA*	General Aviation
GAMET	General Aviation Meteorological Forecast
GAT	General Air Traffic
GBAS	Ground Based Augmentation System
GCA	Ground Controlled Approach System OR Ground Controlled Approach
GLD	Glider
GLS	GBAS Landing System
GND	Ground
GNSS	Global Navigation Satellite System
GP	Glide Path
GPA	Glide Path Angle
GPS	Global Positioning System
GPWS	Ground Proximity Warning System
GR	Hail
GRASS	Grass Landing Area
GRVL	Gravel
GS	Ground Speed

H	
H24	Continuous Day and Night Service
HAPI	Helicopter Approach Path Indicator
HBN	Hazard Beacon
HDF	High Frequency Direction-Finding Station
HDG	Heading
HEL	Helicopter
HEMS*	Helicopter Emergency Medical Service
HF	High Frequency (3000 to 30000 kHz)
HGT	Height OR Height Above
HJ	Sunrise to sunset
HLDG	Holding

HMR*	Helicopter Main Routes
HN	Sunset to Sunrise
HO	Service available to meet operational requirements
HOL	Holiday
HOPA*	Helicopter Operational Area
HOSP	Hospital Aircraft
HOZ*	Helicopter Operating Zone
HPA	Hectopascal
HR/HRS	Hours
HVY	Heavy
HX	No Specific Working Hours
Hz	Hertz (Cycle Per Second)

I	
IAC	Instrument Approach Chart
IAF	Initial Approach Fix
IAP	Instrument Approach Procedure
IAR	Intersection of Air Routes
IAS	Indicated Air Speed
IBN	Identification Beacon
ID	Identifier OR Identify
IDENT	Identification
IF	Intermediate Approach Fix
IFF	Identification Friend/Foe
IFPS	Integrated Flight Planning System
IFR	Instrument Flight Rules
ILS	Instrument Landing System
IM	Inner marker
IMC	Instrument Meteorological Condition
IMT	Immediate OR Immediately
INA	Initial Approach
INBD	Inbound
INCERFA	Uncertainty Phase
INFO	Information
INOP	Inoperative
INS	Inertial Navigation System
INSTL	Install OR Installed OR Installation
INSTR	Instrument
INT	Intersection
INTL	International
INTSF	Intensify OR Intensifying
INTST	Intensity

IRS	Inertial Reference System
IRVR	Instrumented Runway Visual Range
ISA	International Standard Atmosphere
ISOL	Isolated

J

JTST	Jet Stream
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K

KG	Kilograms
KHz	Kilohertz
KIAS	Knots Indicated Airspeed
KM	Kilometers
KMH	Kilometers per Hour
Known Traffic:	Traffic the current flight details and intentions of which are known to the controller concerned through direct communication or co-ordination.
KPA	Kilopascal
KT	Knots
KW	Kilowatts

L

LAT	Latitude
LDA	Landing Distance Available
LDAH	Landing Distance Available, Helicopter
LDG	Landing
LDI	Landing Direction Indicator
LEN	Length
LF	Low Frequency (30 to 300 kHz)
LGT	Light OR Lighting
LGTD	Lighted
LIH	Light Intensity High
LIL	Light Intensity Low
LIM	Light Intensity Medium
LM	Locator, Middle
LNAV	(to be pronounced "EL-NAV") Lateral Navigation
LNG	Long (Used to indicate the type of approach desired or required)
LO	Locator, outer
LOC	Localizer
LONG	Longitude
LORAN	LORAN (Long Range Air Navigation System)
LPV	Localizer Performance with Vertical Guidance
LTD	Limited

LV	Light and Variable (Relating to Wind)
LVL	Level
LVP	Low Visibility Procedures

M	
M	Meters (Preceded by figures)
MAA	Maximum Authorised Altitude
MAG	Magnetic
MAINT	Maintenance
MAP	Aeronautical maps and charts
MAPt	Missed Approach Point
MCA	Minimum Crossing Altitude
MDH	Minimum Descent Height
MEA	Minimum En-route Altitude
METAR	†Aviation routine weather report (In aeronautical meteorological code)
MF	Medium Frequency (300 to 3000 kHz)
MHz	Megahertz
MID	Mid-point (related to RVR)
MIL	Military
MLAT*	Multilateration
MM	Middle Marker
MNM	Minimum
MNTN	Maintain
MOA	Military Operating Area
MOC	Minimum Obstacle Clearance (required)
MOCA	Minimum Obstacle Clearance Altitude
MOD	Moderate (Used to indicate the intensity of weather phenomena, interference or static reports, eg MOD RA = Moderate rain)
MPH	Statute Miles Per Hour
MPS	Meters Per Second
MRP	ATS/MET Reporting Point
MS	Minus
MSA	Minimum Sector Altitude
MSG	Message
MSL	Mean Sea Level
MTOW*	Maximum Take-off Weight

N	
NAV	Navigation
NB	Northbound
NBFR	Not Before
NC	No Change

NDB	Non-Directional Radio Beacon
NEG	No OR Negative OR Permission not granted OR That is not correct
NGT	Night
Night:	The time between half an hour after sunset and half an hour before sunrise, sunset and sunrise being determined at surface level.
NIL	*†None OR I Have nothing to send to you
NM	Nautical Miles
NML	Normal
NOF	International NOTAM Office
NOSIG	No Significant Change (Used in trend -type landing forecasts)
NOTAM	A notice containing information concerning the establishment, condition or change in any aeronautical facility, service, procedure or hazard, the timely knowledge of which is essential to personnel concerned with flight operations
NPA	Non Precision Approach

O	
O/R	On Request
OAS	Obstacle Assessment Surface
OBS	Observe OR Observed OR Observation
OBSC	Obscure OR Obscured OR Obscuring
OBST	Obstacle
OCH	Obstacle Clearance Height
OCNL	Occasional OR Occasionally
OCS	Obstacle Clearance Surface
OFZ	Obstacle Free Zone
OHD	Overhead
OM	Outer Marker
OPMET	Operational Meteorological (information)
OPR	Operator OR Operate OR Operative OR Operating OR Operational
OPS	Operations
OUBD	Outbound

P	
P...	Prohibited area (Followed by identification)
PALS	Precision Approach Lighting System (Specify category)
PANS	Procedures for Air Navigation Services
PAPI	Precision Approach Path Indicator
PAR	Precision Approach Radar
PAX	Passenger(s)
PBN	Performance-based Navigation
PCN	Pavement Classification Number
PDG	Procedure Design Gradient

PER	Performance
PERM	Permanent
POB	Persons On Board
POSS	Possible
PPR	Prior Permission Required
PRI	Primary
PRKG	Parking
PROC	Procedure
PROV	Provisional
PSG	Passing
PSN	Position
PSR	Primary Surveillance Radar
PTN	Procedure Turn
PWR	Power

Q	
QDM	Magnetic Heading (zero wind)
QDR	Magnetic Bearing
QFE	Atmospheric pressure at aerodrome elevation (OR at runway threshold)
QFU	Magnetic orientation of runway
QNH	Altimeter sub-scale setting to obtain elevation when on the ground
QTE	True bearing

R	
R	Right (runway identification)
R...	Restricted Area (followed by identification)
RA	Resolution Advisory
Radial:	A magnetic bearing extending from a VOR/VORTAC/TACAN.
RAI	Runway Alignment Indicator
RCC	Rescue Co-ordination Centre
RCF	Radio Communication Failure (message type designator)
RCL	Runway Centre Line
RCLL	Runway Centre Line Light(s)
RDH	Reference Datum Height (For ILS)
RDL	Radial
RDO	Radio
REC	Receive OR Receiver
REDL	Runway Edge Light(s)
REF	Reference to ... OR Refer to ...
REG	Registration
REQ	Request OR Requested
ERTE	Re-route

RESA	Runway End Safety Area
RET*	Rapid Exit Taxiway
RETIL*	Rapid Exit Taxiway Indicator Lights
RL	Report Leaving
RLCE	Request Level Change En-route
RLNA	Requested Level Not Available
RMK	Remark
RNAV	Area Navigation (To be pronounced 'AR-NAV')
RNG	Radio Range
RNP	Required Navigation Performance
RON	Receiving Only
RPL	Repetitive flight plan
RPLC	Replace OR Replaced
RQMNTS	Requirements
RQP	Request flight plan (message type designator)
RQS	Request supplementary flight plan (message type designator)
RR	Report Reaching
RSCD	Runway Surface Condition
RSP	Responder beacon
RSR	En-Route Surveillance Radar
RTE	Route
RTF	Radiotelephone
RTG	Radiotelegraph
RTHL	Runway threshold light(s)
RTODAH	Rejected Take-off Distance Available, Helicopter
RTS	Return To Service
RTZL	Runway Touchdown Zone Light(s)
RVR	Runway Visual Range
RVSM	Reduced Vertical Separation Minimum
RWY	Runway

S	
SAR	Search and Rescue
SARPS	Standards and Recommended Practices (ICAO)
SATCOM	Satellite Communication
SBAS	Satellite Based Augmentation System
SDBY	Stand by
SDF	Step Down Fix
SEC	Seconds
SECT	Sector
SEG	Stand Entry Guidance
SFC	Surface

SGL	Signal
SHF	Super High Frequency (3000 to 30000 MHz)
SID	Standard Instrument Departure
SIGMET	Information concerning en-route weather phenomena which may affect the safety of aircraft operations
SIGWX	Significant weather
SKED	Schedule OR Scheduled
sm	Statute Mile (5280 ft, 1609m)
SMC	Surface Movement Control
SMR	Surface Movement Radar
SPL	Supplementary flight plan (message type designator)
SR	Sunrise
SRA	Surveillance Radar Approach
SRD	<i>Standard Route Document</i>
SRE	Surveillance Radar Element of precision approach radar system
SRR	Search and Rescue Region
SRY	Secondary
SS	Sunset
SSR	Secondary Surveillance Radar
STAR	Standard instrument arrival
STD	Standard
STOL	Short Take-Off and Landing
STS	Status
STWL	Stopway light(s)
SUBJ	Subject to
SUP	Supplement (AIP Supplement)
SUPPS	Regional supplementary procedures
SVC	Service message
SVCBL	Serviceable
SVFR*	Special Visual Flight Rules
SWY	Stopway

T	
TA	Transition Altitude
TACAN	UHF Tactical Air Navigation Aid
TAF	Aerodrome forecast
TAS	True Airspeed
TCAS*	Traffic Alert and Collision Avoidance System
TCH	Threshold Crossing Height
TDZ	Touch Down Zone
TEL	Telephone
TFC	Traffic

TGL	Touch-and-Go Landing
THR	Threshold
TKOF	Take-off
TLOF	Touchdown and Lift-off Area
TMA	Terminal Control Area
TOC	Top Of Climb
TODA	Take-off Distance Available
TODAH	Take-off Distance Available, Helicopter
TORA	Take-off Run Available
TP	Turning Point
TR	Track
TRA	Temporary Reserved Airspace
TRANS	Transmits OR Transmitter
Transition Altitude*	The altitude at or below which the vertical position of an aircraft is controlled by reference to altitudes.
Transition Layer*	The airspace between the transition altitude and the transition level.
Transition Level*	The lowest flight level available for use above the transition altitude.
TURB	Turbulence
TVOR	Terminal VOR
TWR	Aerodrome control tower OR aerodrome control
TWY	Taxiway
TYP	Type of Aircraft

U	
U/S	Unservicable
UAC	Upper Area Control Centre
UAR	Upper Air Route
UAS	Unmanned Aircraft System
UAV*	Unmanned Aerial Vehicle
UFN	Until Further Notice
UHF	Ultra High Frequency (300 to 3000 MHz)
UIC	Upper Information Centre
UIR	Upper Flight Information Region
UNAP	Unable to Approve
UNL	Unlimited
UNREL	Unreliable
Upper ATS Route:	A designated route within the Upper Airspace CTA.
UTA	Upper Control Area
UTC	Co-ordinated Universal Time

V	
VA	Volcanic Ash
VAC	Visual Approach Chart
VASIS	Visual Approach Slope Indicator System
VCY	Vicinity
VFR	Visual Flight Rules
VHF	Very High Frequency (30 to 300 MHz)
VIP	Very Important Person
VIS	Visibility
VLF	Very Low Frequency (3 to 30 KHz)
VLR	Very Long Range
VMC	Visual Meteorological Conditions
VOR	Very High Frequency Omnidirectional Radio Range
VORTAC	VOR and TACAN combination
VRB	Variable
VRP	Visual Reference Point
VSP	Vertical speed
VTOL	Vertical Take-Off and Landing

W	
WAAS	Wide Area Augmentation System
WAC	World Aeronautical Chart — ICAO 1:1 000 000
WAFC	World Area Forecast Centre
WDI	Wind Direction Indicator
WEF	With Effect From OR Effective From
WGS	World Geodetic System
WIE	With Immediate Effect OR Effective Immediately
WILCO	Will comply
WIP	Work In Progress
WPT	Way-point
WRNG	Warning
WS	Windshear
WT	Weight
WX	Weather

X	
X	Cross
XBAR	Crossbar (of approach lighting system)
XNG	Crossing

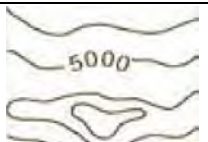
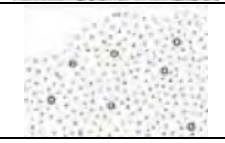
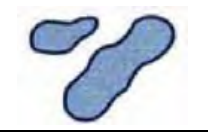
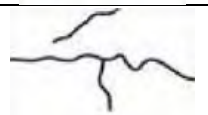
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Z	
Z	Co-ordinated Universal Time (UTC)

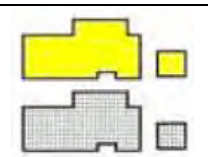
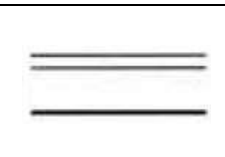
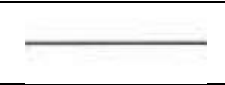
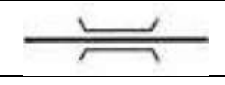
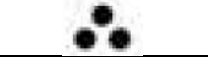
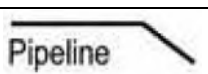
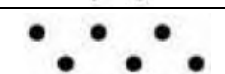
GEN 2.3 CHART SYMBOLS

Charts and chart symbols are structured in accordance with ICAO Annex 4. Depictions referenced most often are listed below. The listing is not all encompassing, additional Annex 4 depictions may be used when appropriate.

1. TOPOGRAPHY

1	Contours		6	Sand Areas	
2	Approximate Contours		7	Gravel	
3	Lakes		8	Dry Lake Bed	
4	Large River		9	Intermittent Rivers and Streams	
5	Small River		10	Wash	

2. CULTURE

11	City or Large Town		17	Primary Roads	
12	Smaller Town or Village		18	Secondary Road	
13	Buildings		19	Road Bridge	
14	Ruins		20	Trail	
15	Railroad		21	Oil or Gas Field	
16	Pipeline		22	Tank Farm	

3. AERODROMES

23	Civil Land	
24	Military Land	
25	Joint Civil and Military	
26	Alternative Representation	

27	Aerodrome Without Services	
28	Heliport	
29	Abandoned or Closed	

AERODROME DATA IN ABBREVIATED FORM

30	Name of aerodrome. Elevation given in the units of measurement (metres or feet) selected for use on the chart. NAVINFOSYS 2021 L H 21 Length of longest runway in hundreds of metres or feet (whichever unit is selected for use on the chart) Minimum lighting - obstacles, boundary or runway lights and lighted wind indicator or landing direction indicator. Runway hard surfaced, normally all weather. <i>Note: A dash (-) is to be inserted where L or H do not apply.</i>
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4. RADIO NAVIGATION AIDS

31	VOR	
32	VOR/DME	

33	DME	
34	NDB	

5. AREA NAVIGATION POINTS

		ON REQUEST FLY-BY	COMPULSORY REQUEST FLY-BY	ON REQUEST FLY-OVER	COMPULSORY REQUEST FLY-OVER
35	REPORTING POINTS				
36	WAYPOINT				

6. SID-STAR CHART ALTITUDES

37	Altitude/flight level "Window"	<u>6000</u> <u>4000</u>	<u>FL250</u> <u>FL100</u>
38	"At or Above" altitude/flight level	<u>3000</u>	<u>FL120</u>
39	"At or Below" altitude/flight level	<u>5000</u>	<u>FL220</u>
40	Mandatory "At" altitude/flight level	<u>6000</u>	<u>FL250</u>
41	Recommended procedure altitude/flight level	4000	FL170

7. AERODROME CONVERSION CHARTS**7.1. Aerodrome Operation Minima Conversion Chart**

<u>CEILING</u>		<u>RUNWAY VISIBILITY</u>					
<u>PUBLISHED MINIMA FEET</u>	<u>REQUIRED EQUIVALENT METERS</u>	<u>RVR VALUES PUBLISHED IN HUNDREDS OF FEET</u>	<u>STATUTE MILE EQUIVALENT</u>	<u>NAUTICAL MILE EQUIVALENT</u>	<u>METERS EQUIVALENT</u>	<u>KILOMETERS EQUIVALENT</u>	
100	30	12	1/4(Helicopter Only)	2/10	370	.4	
200	60						
300	90	16	1/4	2/10	490	.5	
400	120	20	3/8	3/10	610	.6	
500	150	24	1/2	4/10	730	.7	
600	180	32	5/8	6/10	970	1.0	
700	210	40	3/4	7/10	1220	1.2	
800	240	45	7/8	8/10	1370	1.4	
900	270	50	1	9/10	1520	1.5	
1000	300	60	1-1/4	1-1/10	1830	1.8	
1100	330						
1200	360						
1300	390						
1400	420						
1500	450						

7.2. Prevailing Visibility Conversion Chart

STATUTE MILES	NAUTICAL MILES	METER S	KOLOMETER S	STATUTE MILES	NAUTICAL MILES	METERS	KOLOMETER S
1/8	1/10	200	.2	1-3/4	1-5/10	2800	2.8
1/4	2/10	400	.4	1-7/8	1-6/10	3000	3.0
3/8	3/10	600	.6	2	1-7/10	3200	3.2
	4/10	700	.7		1-8/10	3400	3.4
1/2		800	.8	2-1/4	1-9/10	3600	3.6
	5/10	900	.9		2	3700	3.7
5/8		1000	1.0		2-1/10	3900	3.9
	6/10	1100	1.1	2-1/2	2-2/10	4000	4.0
3/4		1200	1.2	2-5/8		4200	4.2
	7/10	1300	1.3		2-3/10	4300	4.3
7/8		1400	1.4	2-3/4		4400	4.4
	8/10	1500	1.5		2-4/10	4500	4.5
1		1600	1.6	2-7/8		4600	4.6
	9/10	1700	1.7		2-5/10	4700	4.7
1-1/8	1	1800	1.8	3	2-6/10	4800	4.8
1-1/4	1-1/10	2000	2.0		2-7/10	5000	5.0
1-3/8	1-2/10	2200	2.2		2-8/10	5200	5.2
1-1/2	1-3/10	2400	2.4		2-9/10	5400	5.4
1-5/8	1-4/10	2600	2.6		3	6000	6.0

GEN 2.4 LOCATION INDICATORS

P = Paved, U = Unpaved

ENCODE			DECODE	
Location	Indicator		Indicator	Location
Adareil Airport	HJAR	U	HJAR	Adareil Airport
Akobo Airport	HJAK	U	HJAK	Akobo Airport
Aweil Airport	HJAW	U	HJAW	Aweil Airport
Bentiu Airport	HJBT	U	HJBT	Bentiu Airport
Bor Airport	HJBR	U	HJBR	Bor Airport
Juba International Airport**	HJJJ	P	HJJJ	Juba International Airport**
Kapoeta Airport	HJKP	U	HJKP	Kapoeta Airport
Malakal Airport	HJMK	P	HJMK	Malakal Airport
Maridi Airport	HJMD	U	HJMD	Maridi Airport
Paloich Airport	HJFA	P	HJFA	Paloich Airport
Pibor Airport	HJPI	U	HJPI	Pibor Airport
Raga Airport	HJRJ	U	HJRJ	Raga Airport
Rumbek Airport	HJRB	U	HJRB	Rumbek Airport
Torit Airport	HJTR	U	HJTR	Torit Airport
Tumbura Airport	HJTU	U	HJTU	Tumbura Airport
Wau Airport	HJWW	P	HJWW	Wau Airport
Yambio Airport	HJYA	U	HJYA	Yambio Airport
Yei Airport	HJYE	U	HJYE	Yei Airport
Yirol Airport	HJYL	U	HJYL	Yirol Airport

** International airport

GEN 2.5 LIST OF RADIO NAVIGATION AIDS

ID	Station Name	Aid	Purpose
JUB	Juba	VOR/DME	AE
MLK*	Malakal*	VOR/DME*	AE

*Non-operational

GEN 2.6 CONVERSION OF UNITS OF MEASUREMENT

Nautical Mile to Kilometer to Nautical Mile, and Feet to Meter to Feet

NM to KM 1NM = 1.852KM		KM to NM 1KM = 1/1.852NM		FT to M 1FT = 0.3048M		M to FT 1M = 1/0.3048FT	
NM	KM	KM	NM	FT	M	M	FT
0.1	0.185	0.1	0.05	1	0.305	1	3.28
0.2	0.370	0.2	0.11	2	0.610	2	6.56
0.3	0.556	0.3	0.16	3	0.914	3	9.84
0.4	0.741	0.4	0.22	4	1.219	4	13.12
0.5	0.926	0.5	0.27	5	1.524	5	16.40
0.6	1.111	0.6	0.32	6	1.829	6	19.69
0.7	1.296	0.7	0.38	7	2.134	7	22.97
0.8	1.482	0.8	0.43	8	2.438	8	26.25
0.9	1.667	0.9	0.49	9	2.743	9	29.53
1	1.852	1	0.54	10	3.048	10	32.81
2	3.704	2	1.08	20	6.096	20	65.62
3	5.556	3	1.62	30	9.144	30	98.43
4	7.408	4	2.16	40	12.192	40	131.23
5	9.260	5	2.70	50	15.240	50	164.04
6	11.112	6	3.24	60	18.288	60	196.85
7	12.964	7	3.78	70	21.336	70	229.66
8	14.816	8	4.32	80	24.384	80	262.47
9	16.668	9	4.86	90	27.432	90	295.28
10	18.520	10	5.40	100	30.480	100	328.08
20	37.040	20	10.80	200	60.960	200	656.17
30	55.560	30	16.20	300	91.440	300	984.25
40	74.080	40	21.60	400	121.920	400	1,312.34
50	92.600	50	27.00	500	152.400	500	1,640.42
60	111.120	60	32.40	600	182.880	600	1,968.50
70	129.640	70	37.80	700	213.360	700	2,296.59
80	148.160	80	43.20	800	243.840	800	2,624.67
90	166.680	90	48.60	900	274.320	900	2,952.76
100	185.200	100	54.00	1000	304.800	1000	3,280.84
200	370.400	200	107.99	2000	609.600	2000	6,561.68
300	555.600	300	161.99	3000	914.400	3000	9,842.52
400	740.800	400	215.98	4000	1,219.200	4000	13,123.36
500	926.000	500	269.98	5000	1,424.000	5000	16,404.20
				6000	1,828.800		
				7000	2,133.600		
				8000	2,438.400		
				9000	2,743.200		
				10000	3,048.000		

Decimal minutes of an arc to seconds of an arc

MIN	SEC	MIN	SEC	MIN	SEC	MIN	SEC
0.01	0.6	0.26	15.6	0.51	30.6	0.76	45.6
0.02	1.2	0.27	16.2	0.52	31.2	0.77	46.2
0.03	1.8	0.28	16.8	0.53	31.8	0.78	46.8
0.04	2.4	0.29	17.4	0.54	32.4	0.79	47.4
0.05	3.0	0.30	18.0	0.55	33.0	0.80	48.0
0.06	3.6	0.31	18.6	0.56	33.6	0.81	48.6
0.07	4.2	0.32	19.2	0.57	34.2	0.82	49.2
0.08	4.8	0.33	19.8	0.58	34.8	0.83	49.8
0.09	5.4	0.34	20.4	0.59	35.4	0.84	50.4
0.10	6.0	0.35	21.0	0.60	36.0	0.85	51.0
0.11	6.6	0.36	21.6	0.61	36.6	0.86	51.6
0.12	7.2	0.37	22.2	0.62	37.2	0.87	52.2
0.13	7.8	0.38	22.8	0.63	37.8	0.88	52.8
0.14	8.4	0.39	23.4	0.64	38.4	0.89	53.4
0.15	9.0	0.40	24.0	0.65	39.0	0.90	54.0
0.16	9.6	0.41	24.6	0.66	39.6	0.91	54.6
0.17	10.2	0.42	25.2	0.67	40.2	0.92	55.2
0.18	10.8	0.43	25.8	0.68	40.8	0.93	55.8
0.19	11.4	0.44	26.4	0.69	41.4	0.94	56.4
0.20	12.0	0.45	27.0	0.70	42.0	0.95	57.0
0.21	12.6	0.46	27.6	0.71	42.6	0.96	57.6
0.22	13.2	0.47	28.2	0.72	43.2	0.97	58.2
0.23	13.8	0.48	28.8	0.73	43.8	0.98	58.8
0.24	14.4	0.49	29.4	0.74	44.4	0.99	59.4
0.25	15.0	0.50	30.0	0.75	45.0		

Seconds of an arc to decimal minutes of an arc

SEC	MIN	SEC	MIN	SEC	MIN	SEC	MIN
1	0.02	16	0.27	31	0.52	46	0.77
2	0.03	17	0.28	32	0.53	47	0.78
3	0.05	18	0.30	33	0.55	48	0.80
4	0.07	19	0.32	34	0.57	49	0.82
5	0.08	20	0.33	35	0.58	50	0.83
6	0.10	21	0.35	36	0.60	51	0.85
7	0.12	22	0.37	37	0.62	52	0.87
8	0.13	23	0.38	38	0.63	53	0.88
9	0.15	24	0.40	39	0.65	54	0.90
10	0.17	25	0.42	40	0.67	55	0.92
11	0.18	26	0.43	41	0.68	56	0.93
12	0.20	27	0.45	42	0.70	57	0.95
13	0.22	28	0.47	43	0.72	58	0.97
14	0.23	29	0.48	44	0.73	59	0.98
15	0.25	30	0.50	45	0.75		

GEN 2.7 SUNRISE/SUNSET TABLESSource: <https://www.esrl.noaa.gov/gmd/grad/solcalc/sunrise.html>**1. UTC SUNRISE AND SUNSET TABLES FOR JUBA**

Juba 4°52'19"N 31°36'4"E

All times in UTC

2021	JAN		FEB		MAR		APR		2021
Day	SR	SS	SR	SS	SR	SS	SR	SS	Day
01	04:02	15:53	04:10	16:05	04:05	16:07	03:53	16:02	01
02	04:02	15:53	04:10	16:05	04:05	16:07	03:52	16:02	02
03	04:03	15:54	04:10	16:05	04:04	16:07	03:52	16:02	03
04	04:03	15:54	04:10	16:05	04:04	16:06	03:51	16:02	04
05	04:03	15:55	04:10	16:06	04:04	16:06	03:51	16:02	05
06	04:04	15:55	04:10	16:06	04:03	16:06	03:50	16:02	06
07	04:04	15:56	04:10	16:06	04:03	16:06	03:50	16:01	07
08	04:05	15:56	04:10	16:06	04:03	16:06	03:50	16:01	08
09	04:05	15:57	04:09	16:06	04:02	16:06	03:49	16:01	09
10	04:05	15:57	04:09	16:06	04:02	16:06	03:49	16:01	10
11	04:06	15:58	04:09	16:06	04:02	16:06	03:48	16:01	11
12	04:06	15:58	04:09	16:07	04:01	16:06	03:48	16:01	12
13	04:06	15:58	04:09	16:07	04:01	16:05	03:48	16:01	13
14	04:07	15:59	04:09	16:07	04:00	16:05	03:47	16:00	14
15	04:07	15:59	04:09	16:07	04:00	16:05	03:47	16:00	15
16	04:07	16:00	04:09	16:07	03:59	16:05	03:47	16:00	16
17	04:07	16:00	04:08	16:07	03:59	16:05	03:46	16:00	17
18	04:08	16:00	04:08	16:07	03:59	16:05	03:46	16:00	18
19	04:08	16:01	04:08	16:07	03:58	16:04	03:45	16:00	19
20	04:08	16:01	04:08	16:07	03:58	16:04	03:45	16:00	20
21	04:08	16:02	04:07	16:07	03:57	16:04	03:45	16:00	21
22	04:09	16:02	04:07	16:07	03:57	16:04	03:44	16:00	22
23	04:09	16:02	04:07	16:07	03:56	16:04	03:44	16:00	23
24	04:09	16:03	04:07	16:07	03:56	16:04	03:44	16:00	24
25	04:09	16:03	04:06	16:07	03:56	16:03	03:44	16:00	25
26	04:09	16:03	04:06	16:07	03:55	16:03	03:43	16:00	26
27	04:09	16:04	04:06	16:07	03:55	16:03	03:43	16:00	27
28	04:09	16:04	04:05	16:07	03:54	16:03	03:43	15:59	28
29	04:10	16:04			03:54	16:03	03:42	15:59	29
30	04:10	16:04			03:53	16:03	03:42	15:59	30
31	04:10	16:05			03:53	16:02			31
	Summer Solstice			Spring and Fall Equinox				Winter Solstice	

Juba 4°52'19"N 31°36'4"E

All times in UTC

2021	MAY		JUN		JUL		AUG		2021
Day	SR	SS	SR	SS	SR	SS	SR	SS	Day
01	03:42	15:59	03:40	16:03	03:45	16:10	03:50	16:10	01
02	03:42	15:59	03:40	16:03	03:46	16:10	03:50	16:10	02
03	03:42	15:59	03:40	16:04	03:46	16:10	03:50	16:09	03
04	03:41	16:00	03:40	16:04	03:46	16:10	03:50	16:09	04
05	03:41	16:00	03:40	16:04	03:46	16:10	03:50	16:09	05
06	03:41	16:00	03:40	16:04	03:47	16:10	03:50	16:09	06
07	03:41	16:00	03:41	16:04	03:47	16:10	03:50	16:09	07
08	03:41	16:00	03:41	16:05	03:47	16:10	03:50	16:08	08
09	03:40	16:00	03:41	16:05	03:47	16:11	03:50	16:08	09
10	03:40	16:00	03:41	16:05	03:47	16:11	03:50	16:08	10
11	03:40	16:00	03:41	16:05	03:48	16:11	03:50	16:07	11
12	03:40	16:00	03:41	16:06	03:48	16:11	03:50	16:07	12
13	03:40	16:00	03:42	16:06	03:48	16:11	03:50	16:07	13
14	03:40	16:00	03:42	16:06	03:48	16:11	03:50	16:07	14
15	03:40	16:00	03:42	16:06	03:48	16:11	03:50	16:06	15
16	03:40	16:00	03:42	16:07	03:48	16:11	03:50	16:06	16
17	03:40	16:00	03:42	16:07	03:49	16:11	03:50	16:06	17
18	03:40	16:01	03:43	16:07	03:49	16:11	03:50	16:05	18
19	03:39	16:01	03:43	16:07	03:49	16:11	03:49	16:05	19
20	03:39	16:01	03:43	16:07	03:49	16:11	03:49	16:05	20
21	03:39	16:01	03:43	16:08	03:49	16:11	03:49	16:04	21
22	03:39	16:01	03:43	16:08	03:49	16:11	03:49	16:04	22
23	03:39	16:01	03:44	16:08	03:49	16:11	03:49	16:03	23
24	03:39	16:02	03:44	16:08	03:50	16:11	03:49	16:03	24
25	03:39	16:02	03:44	16:08	03:50	16:11	03:49	16:03	25
26	03:40	16:02	03:44	16:09	03:50	16:11	03:48	16:02	26
27	03:40	16:02	03:45	16:09	03:50	16:10	03:48	16:02	27
28	03:40	16:02	03:45	16:09	03:50	16:10	03:48	16:01	28
29	03:40	16:02	03:45	16:09	03:50	16:10	03:48	16:01	29
30	03:40	16:03	03:45	16:09	03:50	16:10	03:48	16:01	30
31	03:40	16:03			03:50	16:10	03:48	16:00	31

	Summer Solstice		Spring and Fall Equinox		Winter Solstice
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Juba 4°52'19"N 31°36'4"E

All times in UTC

2021	SEP		OCT		NOV		DEC		2021
Day	SR	SS	SR	SS	SR	SS	SR	SS	Day
01	03:47	16:00	03:41	15:45	03:39	15:35	03:47	15:39	01
02	03:47	15:59	03:41	15:45	03:39	15:35	03:47	15:39	02
03	03:47	15:59	03:41	15:44	03:39	15:35	03:48	15:39	03
04	03:47	15:58	03:41	15:44	03:39	15:35	03:48	15:40	04
05	03:47	15:58	03:40	15:44	03:39	15:35	03:49	15:40	05
06	03:46	15:57	03:40	15:43	03:39	15:35	03:49	15:40	06
07	03:46	15:57	03:40	15:43	03:39	15:35	03:50	15:41	07
08	03:46	15:56	03:40	15:42	03:40	15:35	03:50	15:41	08
09	03:46	15:56	03:40	15:42	03:40	15:35	03:50	15:42	09
10	03:46	15:55	03:40	15:42	03:40	15:35	03:51	15:42	10
11	03:45	15:55	03:39	15:41	03:40	15:35	03:51	15:42	11
12	03:45	15:54	03:39	15:41	03:40	15:35	03:52	15:43	12
13	03:45	15:54	03:39	15:40	03:41	15:35	03:52	15:43	13
14	03:45	15:53	03:39	15:40	03:41	15:35	03:53	15:44	14
15	03:45	15:53	03:39	15:40	03:41	15:35	03:53	15:44	15
16	03:44	15:53	03:39	15:39	03:41	15:35	03:54	15:45	16
17	03:44	15:52	03:39	15:39	03:42	15:35	03:54	15:45	17
18	03:44	15:52	03:39	15:39	03:42	15:36	03:55	15:46	18
19	03:44	15:51	03:39	15:38	03:42	15:36	03:55	15:46	19
20	03:43	15:51	03:39	15:38	03:43	15:36	03:56	15:47	20
21	03:43	15:50	03:39	15:38	03:43	15:36	03:56	15:47	21
22	03:43	15:50	03:38	15:37	03:43	15:36	03:57	15:48	22
23	03:43	15:49	03:38	15:37	03:44	15:36	03:57	15:48	23
24	03:43	15:49	03:38	15:37	03:44	15:37	03:58	15:49	24
25	03:42	15:48	03:38	15:37	03:44	15:37	03:58	15:49	25
26	03:42	15:48	03:38	15:37	03:45	15:37	03:59	15:50	26
27	03:42	15:47	03:38	15:36	03:45	15:37	03:59	15:50	27
28	03:42	15:47	03:38	15:36	03:46	15:38	04:00	15:51	28
29	03:41	15:46	03:39	15:36	03:46	15:38	04:00	15:51	29
30	03:41	15:46	03:39	15:36	03:46	15:38	04:01	15:52	30
31			03:39	15:36			04:01	15:52	31

	Summer Solstice		Spring and Fall Equinox		Winter Solstice
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2. LOCAL TIME SUNRISE AND SUNSET TABLES FOR JUBA

Juba 4°52'19"N 31°36'4"E

All times **Local Juba Time**

2021	JAN		FEB		MAR		APR		2021
Day	SR	SS	SR	SS	SR	SS	SR	SS	Day
01	06:02	17:53	06:10	18:05	06:05	18:07	05:53	18:02	01
02	06:02	17:53	06:10	18:05	06:05	18:07	05:52	18:02	02
03	06:03	17:54	06:10	18:05	06:04	18:07	05:52	18:02	03
04	06:03	17:54	06:10	18:05	06:04	18:06	05:51	18:02	04
05	06:03	17:55	06:10	18:06	06:04	18:06	05:51	18:02	05
06	06:04	17:55	06:10	18:06	06:03	18:06	05:50	18:02	06
07	06:04	17:56	06:10	18:06	06:03	18:06	05:50	18:01	07
08	06:05	17:56	06:10	18:06	06:03	18:06	05:50	18:01	08
09	06:05	17:57	06:09	18:06	06:02	18:06	05:49	18:01	09
10	06:05	17:57	06:09	18:06	06:02	18:06	05:49	18:01	10
11	06:06	17:58	06:09	18:06	06:02	18:06	05:48	18:01	11
12	06:06	17:58	06:09	18:07	06:01	18:06	05:48	18:01	12
13	06:06	17:58	06:09	18:07	06:01	18:05	05:48	18:01	13
14	06:07	17:59	06:09	18:07	06:00	18:05	05:47	18:00	14
15	06:07	17:59	06:09	18:07	06:00	18:05	05:47	18:00	15
16	06:07	18:00	06:09	18:07	05:59	18:05	05:47	18:00	16
17	06:07	18:00	06:08	18:07	05:59	18:05	05:46	18:00	17
18	06:08	18:00	06:08	18:07	05:59	18:05	05:46	18:00	18
19	06:08	18:01	06:08	18:07	05:58	18:04	05:45	18:00	19
20	06:08	18:01	06:08	18:07	05:58	18:04	05:45	18:00	20
21	06:08	18:02	06:07	18:07	05:57	18:04	05:45	18:00	21
22	06:09	18:02	06:07	18:07	05:57	18:04	05:44	18:00	22
23	06:09	18:02	06:07	18:07	05:56	18:04	05:44	18:00	23
24	06:09	18:03	06:07	18:07	05:56	18:04	05:44	18:00	24
25	06:09	18:03	06:06	18:07	05:56	18:03	05:44	18:00	25
26	06:09	18:03	06:06	18:07	05:55	18:03	05:43	18:00	26
27	06:09	18:04	06:06	18:07	05:55	18:03	05:43	18:00	27
28	06:09	18:04	06:05	18:07	05:54	18:03	05:43	17:59	28
29	06:10	18:04			05:54	18:03	05:42	17:59	29
30	06:10	18:04			05:53	18:03	05:42	17:59	30
31	06:10	18:05			05:53	18:02			31

	Summer Solstice		Spring and Fall Equinox		Winter Solstice
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Juba 4°52'19"N 31°36'4"E

All times Local Juba Time

2021	MAY		JUN		JUL		AUG		2021
Day	SR	SS	SR	SS	SR	SS	SR	SS	Day
01	05:42	17:59	05:40	18:03	05:45	18:10	05:50	18:10	01
02	05:42	17:59	05:40	18:03	05:46	18:10	05:50	18:10	02
03	05:42	17:59	05:40	18:04	05:46	18:10	05:50	18:09	03
04	05:41	18:00	05:40	18:04	05:46	18:10	05:50	18:09	04
05	05:41	18:00	05:40	18:04	05:46	18:10	05:50	18:09	05
06	05:41	18:00	05:40	18:04	05:47	18:10	05:50	18:09	06
07	05:41	18:00	05:41	18:04	05:47	18:10	05:50	18:09	07
08	05:41	18:00	05:41	18:05	05:47	18:10	05:50	18:08	08
09	05:40	18:00	05:41	18:05	05:47	18:11	05:50	18:08	09
10	05:40	18:00	05:41	18:05	05:47	18:11	05:50	18:08	10
11	05:40	18:00	05:41	18:05	05:48	18:11	05:50	18:07	11
12	05:40	18:00	05:41	18:06	05:48	18:11	05:50	18:07	12
13	05:40	18:00	05:42	18:06	05:48	18:11	05:50	18:07	13
14	05:40	18:00	05:42	18:06	05:48	18:11	05:50	18:07	14
15	05:40	18:00	05:42	18:06	05:48	18:11	05:50	18:06	15
16	05:40	18:00	05:42	18:07	05:48	18:11	05:50	18:06	16
17	05:40	18:00	05:42	18:07	05:49	18:11	05:50	18:06	17
18	05:40	18:01	05:43	18:07	05:49	18:11	05:50	18:05	18
19	05:39	18:01	05:43	18:07	05:49	18:11	05:49	18:05	19
20	05:39	18:01	05:43	18:07	05:49	18:11	05:49	18:05	20
21	05:39	18:01	05:43	18:08	05:49	18:11	05:49	18:04	21
22	05:39	18:01	05:43	18:08	05:49	18:11	05:49	18:04	22
23	05:39	18:01	05:44	18:08	05:49	18:11	05:49	18:03	23
24	05:39	18:02	05:44	18:08	05:50	18:11	05:49	18:03	24
25	05:39	18:02	05:44	18:08	05:50	18:11	05:49	18:03	25
26	05:40	18:02	05:44	18:09	05:50	18:11	05:48	18:02	26
27	05:40	18:02	05:45	18:09	05:50	18:10	05:48	18:02	27
28	05:40	18:02	05:45	18:09	05:50	18:10	05:48	18:01	28
29	05:40	18:02	05:45	18:09	05:50	18:10	05:48	18:01	29
30	05:40	18:03	05:45	18:09	05:50	18:10	05:48	18:01	30
31	05:40	18:03			05:50	18:10	05:48	18:00	31

	Summer Solstice		Spring and Fall Equinox		Winter Solstice
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Juba 4°52'19"N 31°36'4"E

All times Local Juba Time

2021	SEP		OCT		NOV		DEC		2021
Day	SR	SS	SR	SS	SR	SS	SR	SS	Day
01	05:47	18:00	05:41	17:45	05:39	17:35	05:47	17:39	01
02	05:47	17:59	05:41	17:45	05:39	17:35	05:47	17:39	02
03	05:47	17:59	05:41	17:44	05:39	17:35	05:48	17:39	03
04	05:47	17:58	05:41	17:44	05:39	17:35	05:48	17:40	04
05	05:47	17:58	05:40	17:44	05:39	17:35	05:49	17:40	05
06	05:46	17:57	05:40	17:43	05:39	17:35	05:49	17:40	06
07	05:46	17:57	05:40	17:43	05:39	17:35	05:50	17:41	07
08	05:46	17:56	05:40	17:42	05:40	17:35	05:50	17:41	08
09	05:46	17:56	05:40	17:42	05:40	17:35	05:50	17:42	09
10	05:46	17:55	05:40	17:42	05:40	17:35	05:51	17:42	10
11	05:45	17:55	05:39	17:41	05:40	17:35	05:51	17:42	11
12	05:45	17:54	05:39	17:41	05:40	17:35	05:52	17:43	12
13	05:45	17:54	05:39	17:40	05:41	17:35	05:52	17:43	13
14	05:45	17:53	05:39	17:40	05:41	17:35	05:53	17:44	14
15	05:45	17:53	05:39	17:40	05:41	17:35	05:53	17:44	15
16	05:44	17:53	05:39	17:39	05:41	17:35	05:54	17:45	16
17	05:44	17:52	05:39	17:39	05:42	17:35	05:54	17:45	17
18	05:44	17:52	05:39	17:39	05:42	17:36	05:55	17:46	18
19	05:44	17:51	05:39	17:38	05:42	17:36	05:55	17:46	19
20	05:43	17:51	05:39	17:38	05:43	17:36	05:56	17:47	20
21	05:43	17:50	05:39	17:38	05:43	17:36	05:56	17:47	21
22	05:43	17:50	05:38	17:37	05:43	17:36	05:57	17:48	22
23	05:43	17:49	05:38	17:37	05:44	17:36	05:57	17:48	23
24	05:43	17:49	05:38	17:37	05:44	17:37	05:58	17:49	24
25	05:42	17:48	05:38	17:37	05:44	17:37	05:58	17:49	25
26	05:42	17:48	05:38	17:37	05:45	17:37	05:59	17:50	26
27	05:42	17:47	05:38	17:36	05:45	17:37	05:59	17:50	27
28	05:42	17:47	05:38	17:36	05:46	17:38	06:00	17:51	28
29	05:41	17:46	05:39	17:36	05:46	17:38	06:00	17:51	29
30	05:41	17:46	05:39	17:36	05:46	17:38	06:01	17:52	30
31			05:39	17:36			06:01	17:52	31

	Summer Solstice		Spring and Fall Equinox		Winter Solstice
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