

# FlightSim\_2

## SAMPLE FLIGHT PLAN

blue - input, you can change these

black - output, these follow from your choices

brown - comments

### FLIGHT DATE: TBD

David K. Lynch - USGS/SSI - left rear

David Dearborn - LLNL - left front

Kenneth W. Hudnut - USGS

D90 still camera

HFS10 video camera

Ground support

### FLIGHT PARAMETERS

P1 34 56.050 119 23.810

P2 35 32.139 120 5.212

Starting Point

COMMENT

Stopping Point

COMMENT

P1 latitude decimal

**34.934162** degrees

P1 longitude decimal

**119.39683** degrees

P2 latitude decimal

**35.536734** degrees

P2 longitude decimal

**120.08640** degrees

Track distance flat Earth (P1-P2)

91541 m

from GE

Angular track distance

0.01439561 radians

ab initio computation

radius of Earth

6378100 m

looked it up

Track distance spherical Earth P1-P2

**91817** m

ab initio computation

elevation

**490** ft AGL

elevation

**150** m AGL

LOS dip (view angle below horizon)

**90** degees

LOS distance to center of frame

490 ft

LOS distance

**149** m

speed

**50** kts

speed

58 mph

1 kt = 1.151mph

speed

**26** m/s

1 mph = 0.447 m/s

horizontal angular FOV

**45** degrees

arbitrary zoom

horizontal angular FOV

0.785 radians

Ground horizontal FOV

**124** m

## DATA RATES

Successive picture overlap	<b>30</b> %	
picture interval	3.37 s	
Picture size	<b>4</b> Mb/picture	jpg estimate
Picture rate	<b>0.30</b> pictures/s	
data acquisition rate	<b>1.19</b> Mb/s	
Memory card size	8 Gb	
Memory card size	<b>8000</b> Mb	
Time to fill card	6736 s	
Time to fill card	112.3 minutes	
Data acquisition period P1-P2-P1	7139.09 s	see map
Data acquisition period	119.0 minutes	
number of memory cards needed	1.1 memory cards	
Total amount of data	8.5 Gb	
Total number of pictures	<b>2120</b>	Check This
Total Imagery Distance	<b>183633</b> m	
center-to-center picture distance	<b>87</b> m	
Total number of pictures	<b>2120</b>	Independent check

## SPATIAL RESOLUTION

# of pixels horizontal	<b>4288</b>	D90 with largest pixel count
pixel size on ground (GSD)	0.029 m	
pixel size on ground (GSD)	2.886 cm	
exposure time	<b>0.002</b> s	
distance traveled during exposure	0.051 m	center of frame
image blur at center of picture	1.782 pixels	
NOTE: Pentax K200: # horiz. Pixels	<b>3872</b> pixels	COMMENT

## TIME, DISTANCE, COST Partenavia

Leg 1 Aspen to P1	51.8 miles	
Leg 2 P1 to P2	57.1 miles	<b>91817</b> m
Leg 3 P2 to P1	57.1 miles	91817 m
Leg 4 P1 Aspen	51.8 miles	
Total flight distance	<b>217.7</b> miles	
Leg 1 flight time @ 80 kts	0.56 hr	fixed A - P1
Leg 2 flight time @ ROW 40 speed	0.99 hr	variable P1 - P2
Turn around	0.03 hr	fixed
Leg 3 flight time @ ROW 40 speed	0.99 hr	variable P2 - P1
Leg 4 flight time @ 80 kts	0.56 hr	fixed P1 - A
TOTAL FLIGHT TIME	3.14 hr	variable
B-III hourly rate	325.00 USD \$/hr	fixed
B-III cost	\$1,021 USD \$	variable

## TIME LINE

UT=PDT+7

Elevations from NASA Horizons website

	PDT (hr)	PDT (h:m)	UT (hr)	Sun elevation
Meet at Aspen	14.50	14:30	-2.50	47.0
PREFLIGHT CHECK LIST	14.75	14:45	-2.25	45.2
bathroom break, load gear	15.25	15:15	-1.75	41.9
Take off at Aspen, cameras on/test/off	15.50	15:30	-1.50	39.1
Arrive P1 and begin imagery	16.06	16:03	-0.94	32.6
Arrive P2	17.05	17:03	0.05	21.2
turn around, establish SE track	17.09	17:05	0.09	20.8
Arrive P1 - End imagery	18.08	18:04	1.08	9.4
Land at Aspen	18.64	18:38	1.64	2.9
Back up data	19.14	19:08	2.14	-2.8
Flight time	3.14			
Fields Time (excluding driving)	4.64			
Sunset behind Calientes	18.67	18:40	1.67	2.6

## B-III GARMIN INTERVALS

Total flight distance	217.7 miles
Total flight distance	350.3 km
Total flight distance	350281 m
flight speed	50 kts
flight speed	57.55 mph
flight speed	25.7 m/s
Way point interval	10 s
Way point separation	257 m
Number of way points logged	1362



