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 — D90 still camera
David Dearborn - LLNL - left front — HFS10 video camera
Kenneth W. Hudnut - USGS — Ground support

FLIGHT PARAMETERS

P1 34 56.050 119 23.810		Starting Point	COMMENT
P2 35 32.139 120 5.212		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	**30**	%		
picture interval	3.37	s		
Picture size	**4**	Mb/picture	jpg	estimate
Picture rate	**0.30**	pictures/s		
data acquisition rate	**1.19**	Mb/s		
Memory card size	8	Gb		
Memory card size	**8000**	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	2120	Check This		
Total Imagery Distance	183633	m		
center-to-center picture distance	87	m		
Total number of pictures	2120	Independent check		

SPATIAL RESOLUTION

# of pixels horizontal	**4288**	D90 with largest pixel count	
pixel size on ground (GSD)	0.029	m	
pixel size on ground (GSD)	2.886	cm	
exposure time	**0.002**	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	3872	pixels	COMMENT

TIME, DISTANCE, COST Partenavia

Leg 1 Aspen to P1	51.8	miles		
Leg 2 P1 to P2	57.1	miles	**91817**	m
Leg 3 P2 to P1	57.1	miles	91817	m
Leg 4 P1 Aspen	51.8	miles		
Total flight distance	**217.7**	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

Elevations from NASA Horizons website

UT=PDT+7

	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	