Analysis Techniques: Monthly Analysis Example

Information to get started:

- The lesson below contains step-by-step instructions and "snapshots" of what each step looks like when carried out in a Microsoft Excel workbook. Blue shading of information in the Excel illustrations denotes changes made from the previous step. Dots placed in three consecutive rows indicate that a portion of data is hidden from sight.
- You can download an Excel workbook containing the complete data set by clicking on the "Download Data" link below. It contains each calculation step on a separate worksheet. To move between steps, click on the tabs at the bottom of the excel window.
- When you download the file, it may open in your browser window. You may wish to use the "save as" function to save the file to a local drive and then reopen it in Excel. This will make it easier to flip between the online lesson and the example workbook.
- Finally, we want to remind you that the techniques explained on this site are statistically based; therefore results must be viewed as predictions and not as facts. Please use the techniques and the information obtained from them responsibly!

Download Data

Step 1: Calculate Mean Monthly Flow for Period of Record

- Find mean monthly flow for each month of every year in period of record
- Refer to Tips for Data Manipulation section

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	1946	102	2773	3815	3879	3376	2574	995	412	288	206	110	131	
	1947	495	3478	4137	1778	2912	2039	1494	404	666	245	165	142	_
	1948	2521	2624	1814	4222	3308	2352	2238	1465	486	231	147	138	
	1949	236	1313	4566	1380	6586	1669	741	1097	293	162	108	102	
	1950	152	1174	2245	5533	5568	3741	1394	711	302	159	105	96.6	
	1951	1419	4134	3976	6119	3940	3140	994	829	319	170	91.4	83.2	-
	1952	1600	2494	4936	4092	4142	2708	1038	472	285	163	109	85.5	
	1953	76.8	151	1613	7874	3879	2896	1287	1549	724	269	189	134	
	1964	397	2782	5291	5854	48/6	2061	2130	460	323	191	138	159	
	1955	301	1451	2691	2/01	2001	3132	3173	899	320	219	109	139	
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• Calculate Mean Monthly Flow for Period of Record

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1947	495	3478	4137	1778	2912	2039	1494	404	666	245	165	142	
1948	2521	2624	1814	4222	3308	2352	2238	1465	486	231	147	138	
1949	236	1313	4566	1380	6596	1669	741	1097	293	162	108	102	
1950	152	1174	2245	5533	5568	3741	1394	711	302	159	105	96.6	
1951	1419	4134	3976	6119	3940	3140	994	829	319	170	91.4	83.2	
1952	1600	2494	4936	4092	4142	2708	1038	472	285	183	109	85.5	
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1954	387	2782	5291	5654	4976	2061	2130	460	323	191	138	159	
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1997	323	2307	6977	4115	2127	3035	1314	746	443	203	128	262	
1998	1291	2039	2085	4233	3675	2533	1055	738	448	211	118	102	
1999	170	2782	5507	4848	6750	2954	1441	962	383	191	128	80.5	
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• Plot Mean Monthly Flow vs. Month



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1943	112	3578	5261	3895	3635	1775	2313	615	430	195	143	98.4	
1944	738	969	1695	1647	1704	1657	1507	595	379	171	109	95.1	
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1946	102	2773	3815	3879	3376	2574	995	412	286	205	110	131	
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1948	2521	2624	1814	4222	3308	2352	2238	1485	486	231	147	138	
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1954	387	2782	5291	5654	4976	2061	2130	460	323	191	138	159	
1955	361	1451	2691	2701	2001	3132	3173	699	320	219	109	139	
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1999	170	2782	5507	4848	6750	2854	1441	962	383	191	128	80.5	
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Maximum Flow	2521	6058	7419	7874	6909	5144	3202	1848	1053	363	234	452	
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Step 2: Calculate the Simple Statistics on Monthly Data

• Various Plots of Monthly Data with Simple Statistics Included

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NOV	374	2521	62	801	-53					
	1784	6058	108	3026	541					
DEC	3326	7419	182	5066	1566					
JAN	3565	7874	211	5326	1804					
FEB	3310	6909	607	4795	1826					
MAR	2464	5144	604	3505	1423					
APR	1489	3202	550	2148	831					
MAY	809	1848	331	1168	450					
JUNE	413	1053	178	596	230					
JULY	193	363	116	244	143					
AUG	118	234	66	148	98					
SEPT	129	452	60	198	61					
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Step 3: Normalize Monthly Data

(Mean Monthly Flow as Ratio and Percentage of Annual Flow)

Calculate and Plot Mean Monthly Flows as ratio and percentage of Mean Annual Flow for Period of Record

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DEC	3326	1490	223							
JAN	3565	1490	239							
FEB	3310	1490	222							
MAR	2464	1490	165							
APR	1489	1490	100							
MAY	609	1490	54							
JUNE	413	1490	28							
JULY	193	1490	13							
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