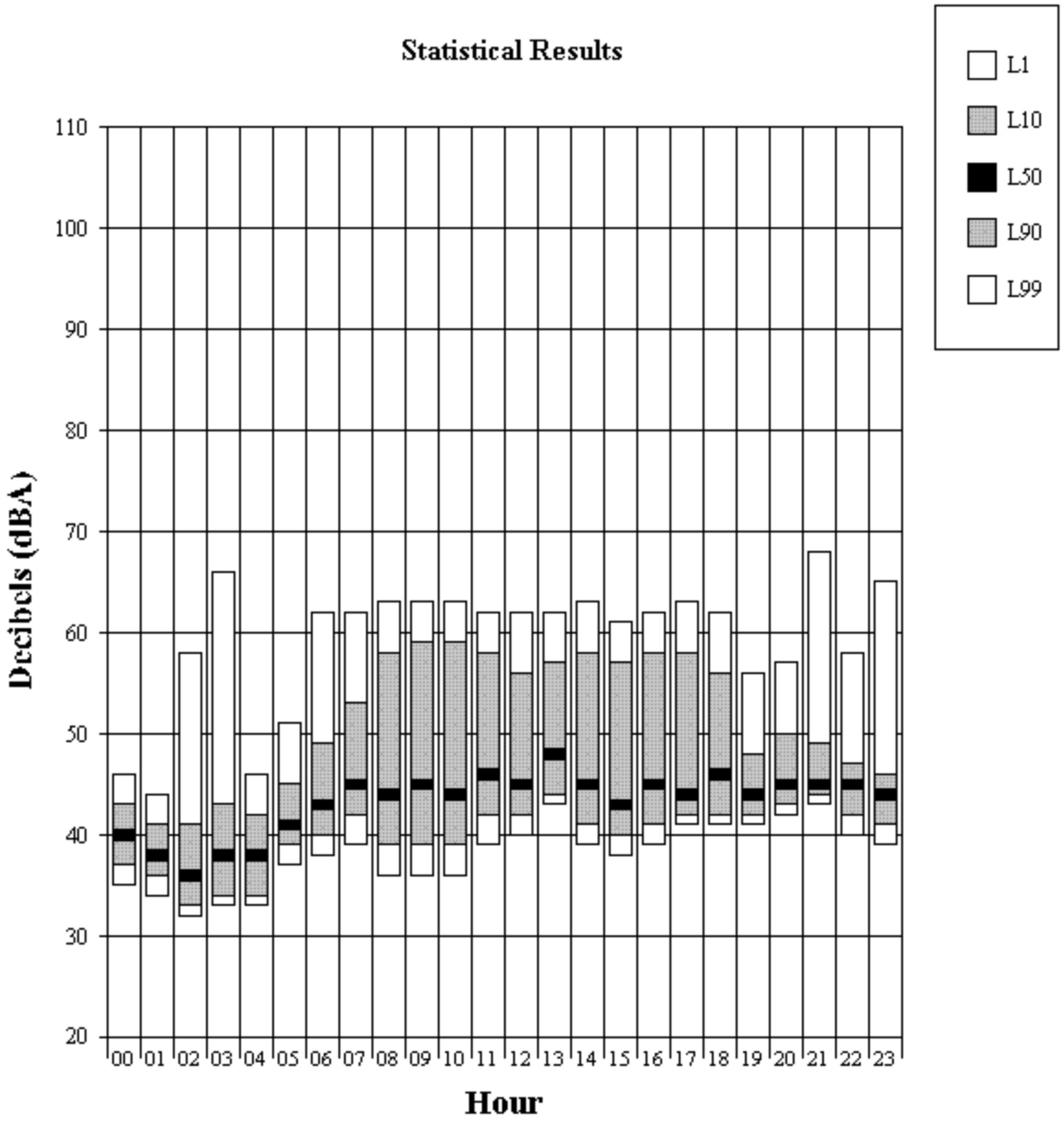
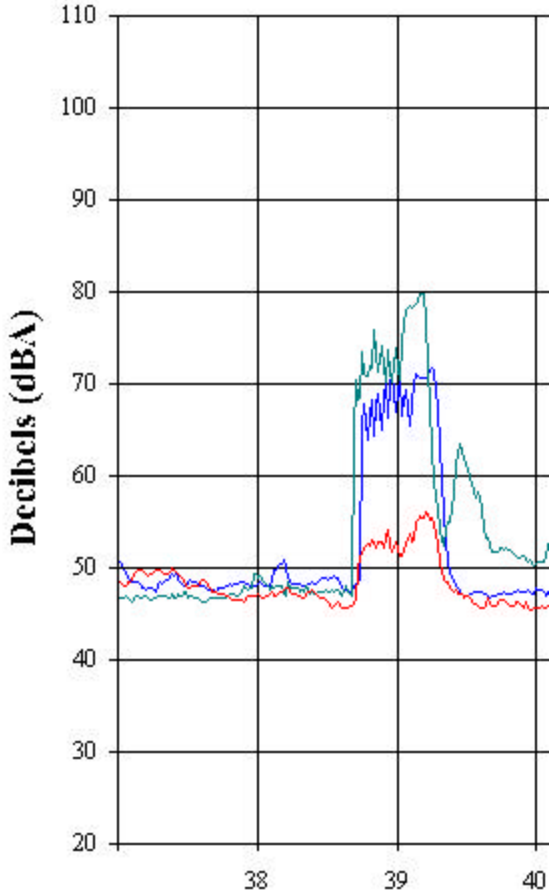
Ambient Noise Levels (by Hour)



Non-Aircraft Noise Events



Single Event Noise

How loud are the single event noise levels?

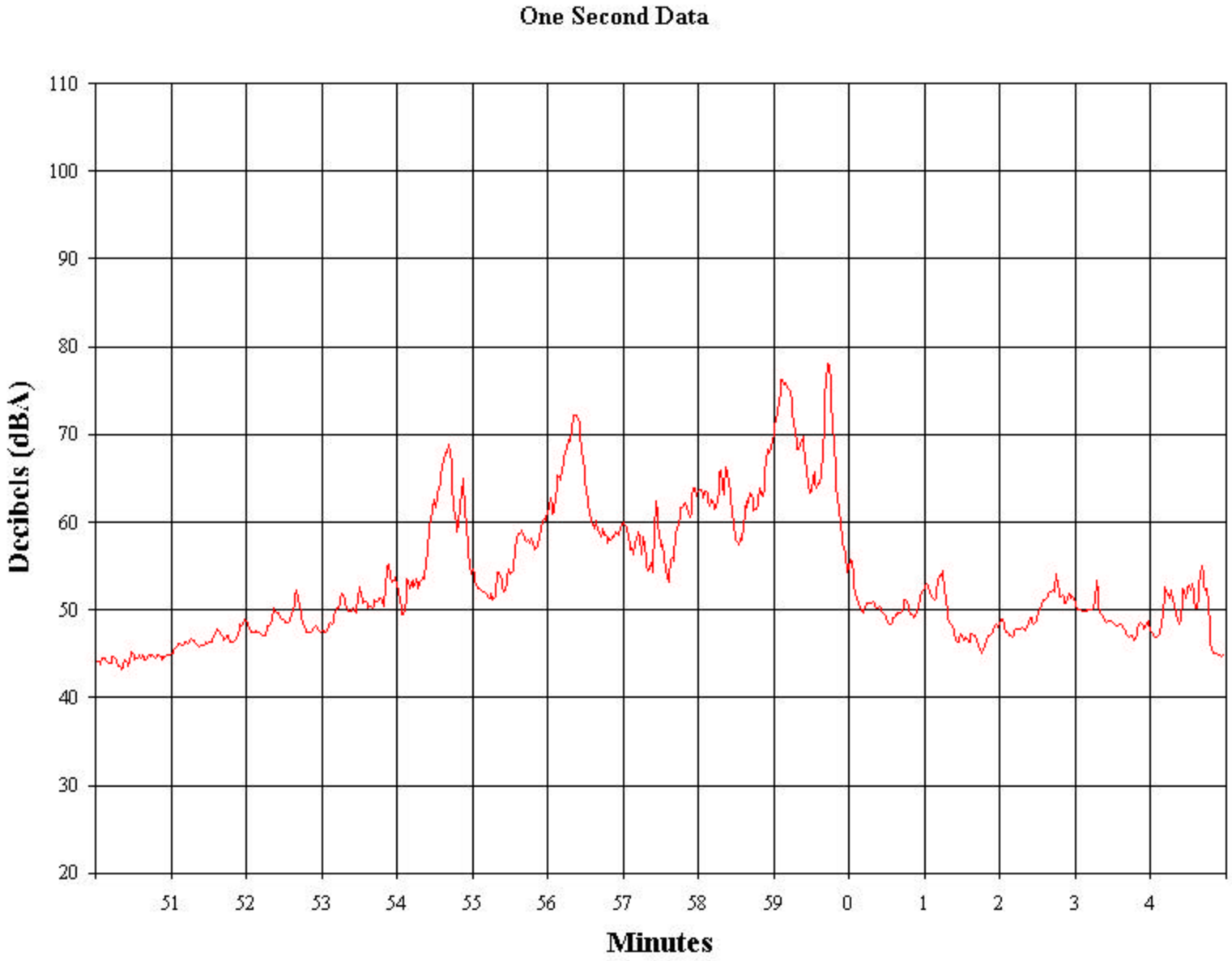
Douglas 2nd

Loudest Aircraft Noise Events Site Report
Juneau Flightseeing Noise Study
Period: July 30, 2000 to July 31, 2000
Site: PS3 - Douglas 2nd - 1208 2nd St.
Filter Hours: 8,9,10,11,12,13,14,15,16,17,18
Airports: JNU,HAR,5Z1,5Z2

Aircraft	Airline	Event Time	Aircraft	Stage	Ops	Rwy	Lmax	Graph Of Lmax
Float	WAK	Jul 30, 17:58	Float		D	U	80.8	
Float	WAK	Jul 30, 13:08	Float		D	U	80.7	
Float	WAK	Jul 30, 14:35	Float		D	U	79.8	
Float	WAK	Jul 30, 11:05	Float		D	U	79.7	
Float	WAK	Jul 30, 15:00	Float		D	U	78.5	
Float	WAK	Jul 31, 17:13	Float		D	U	78.4	
Heli	ERA	Jul 30, 11:09	Heli		D	U	78.1	
Float	WAK	Jul 30, 18:04	Float		D	U	77.9	
Heli	ERA	Jul 30, 13:06	Heli		D	U	77.8	
Float	WAK	Jul 30, 18:16	Float		D	U	77.0	

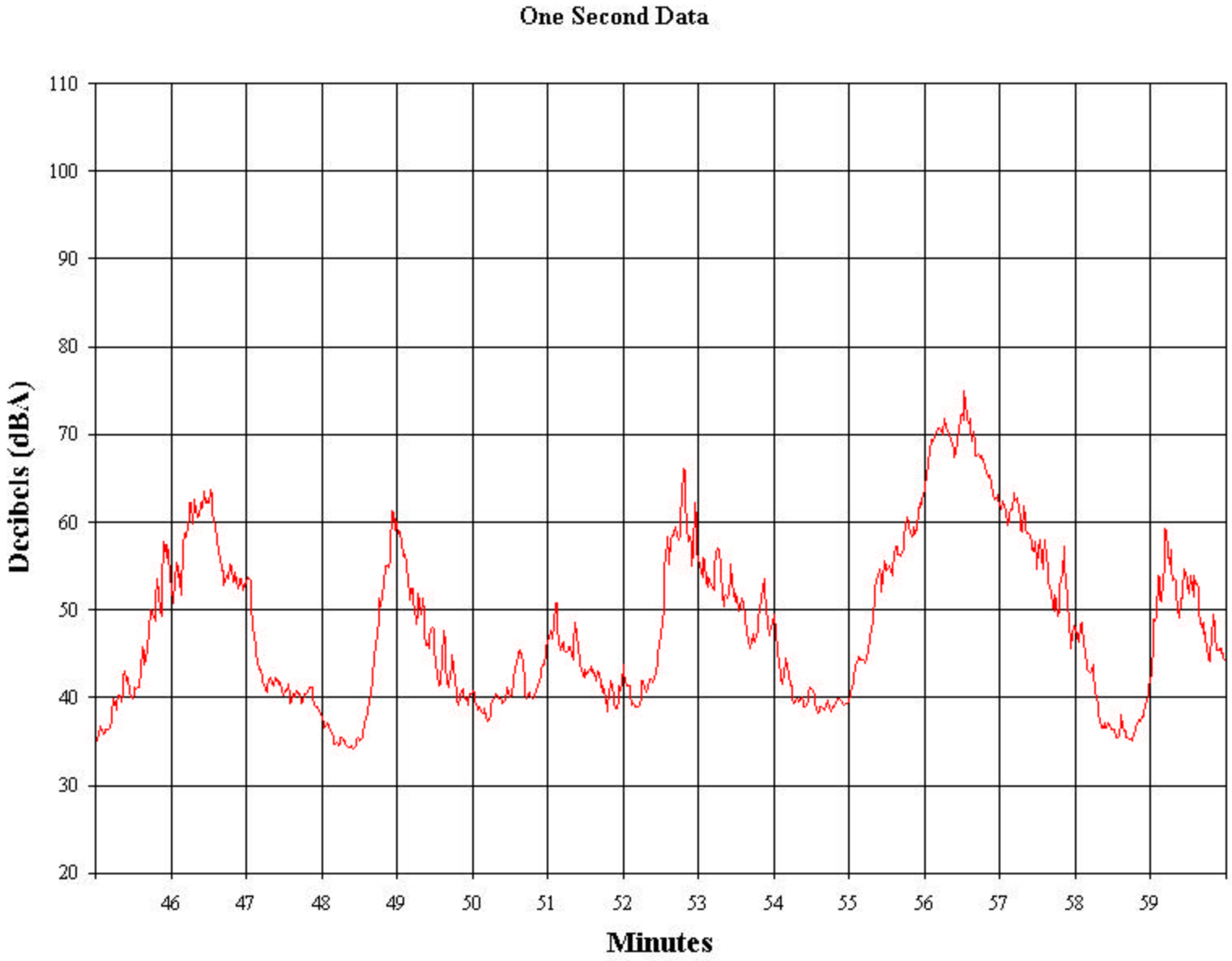
Float Plane Events

Douglas 5th



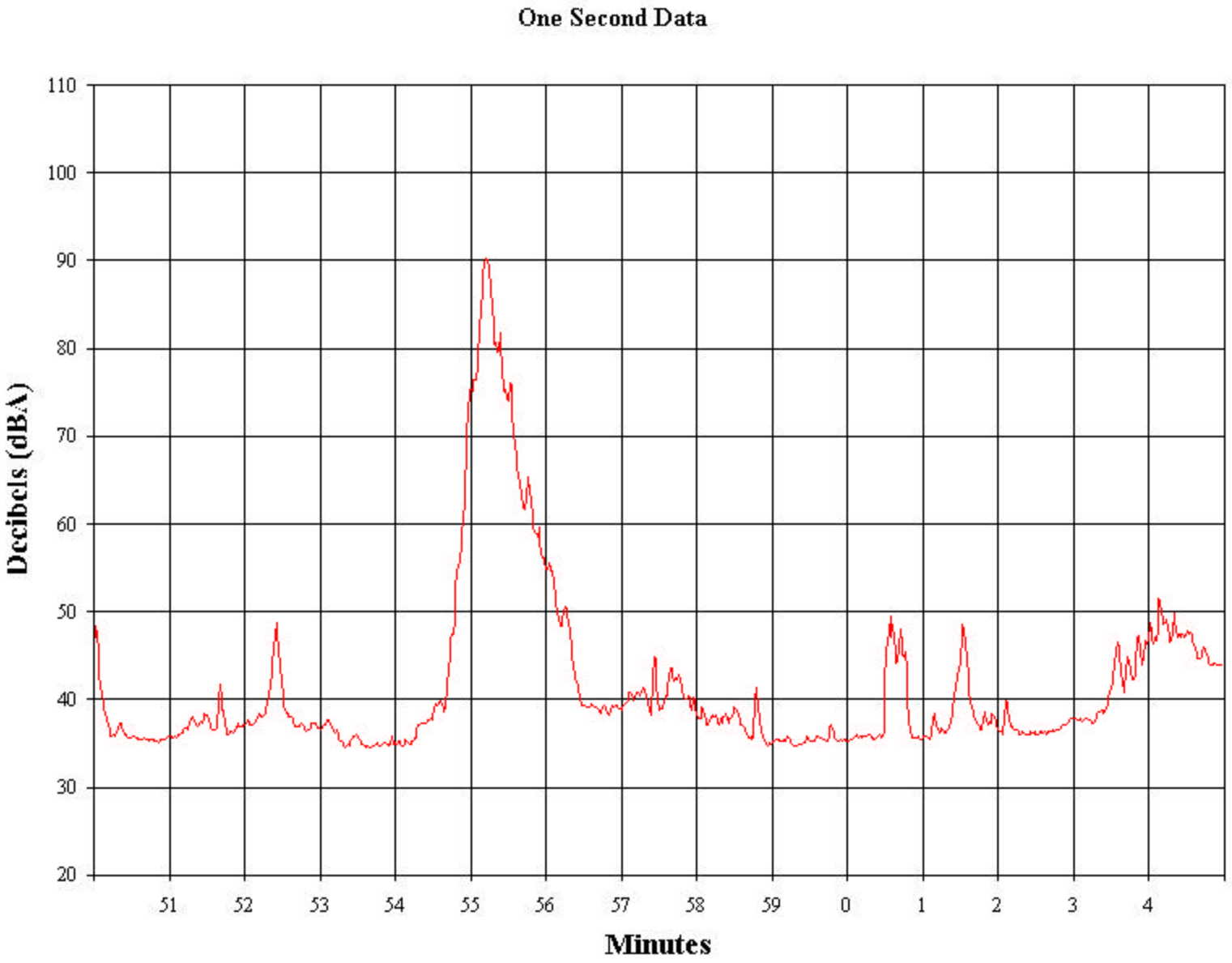
Helicopter Events

Brotherhood Park

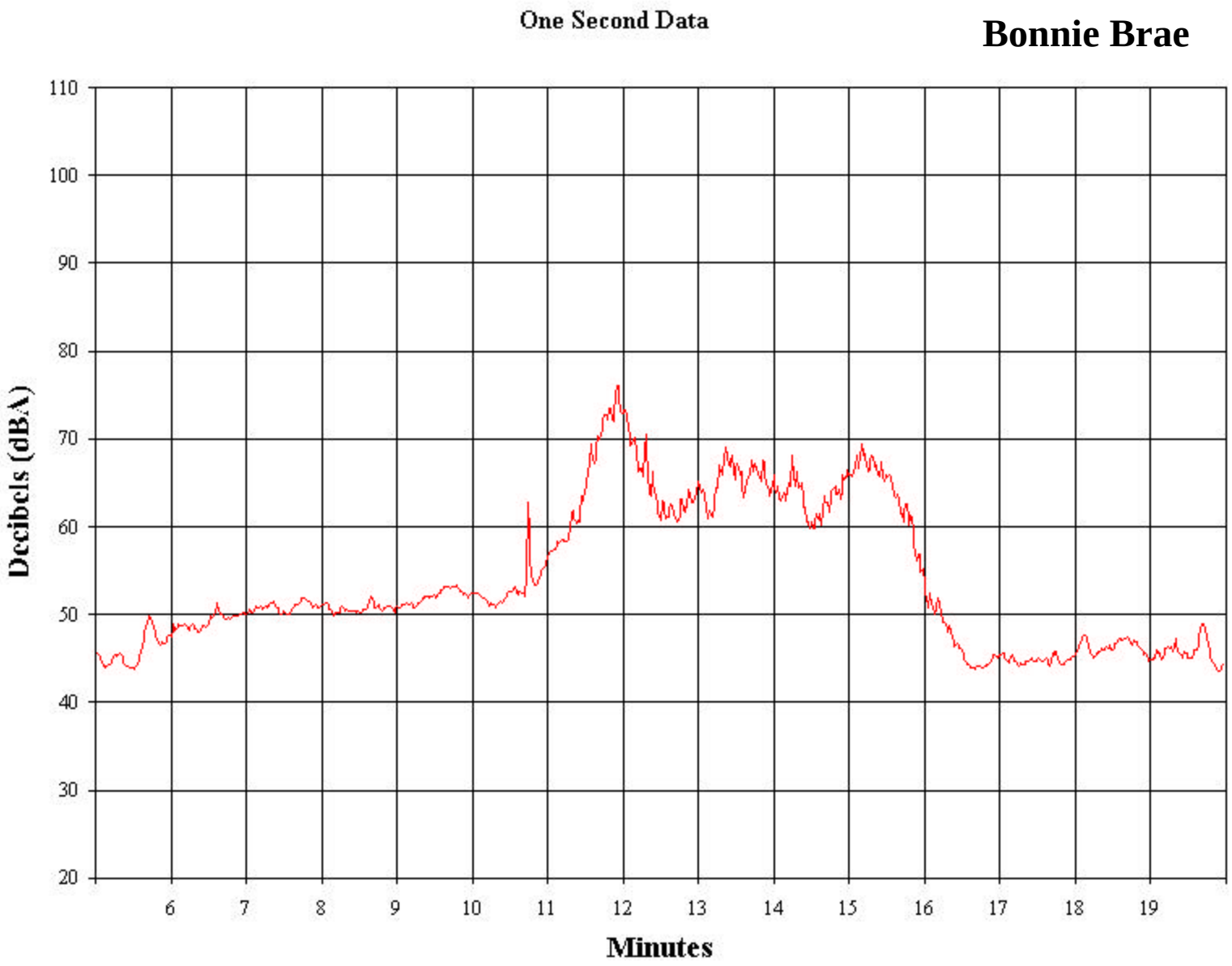


Airport Jet Events

Fritz Cove Rd



Long Duration Helicopter Events

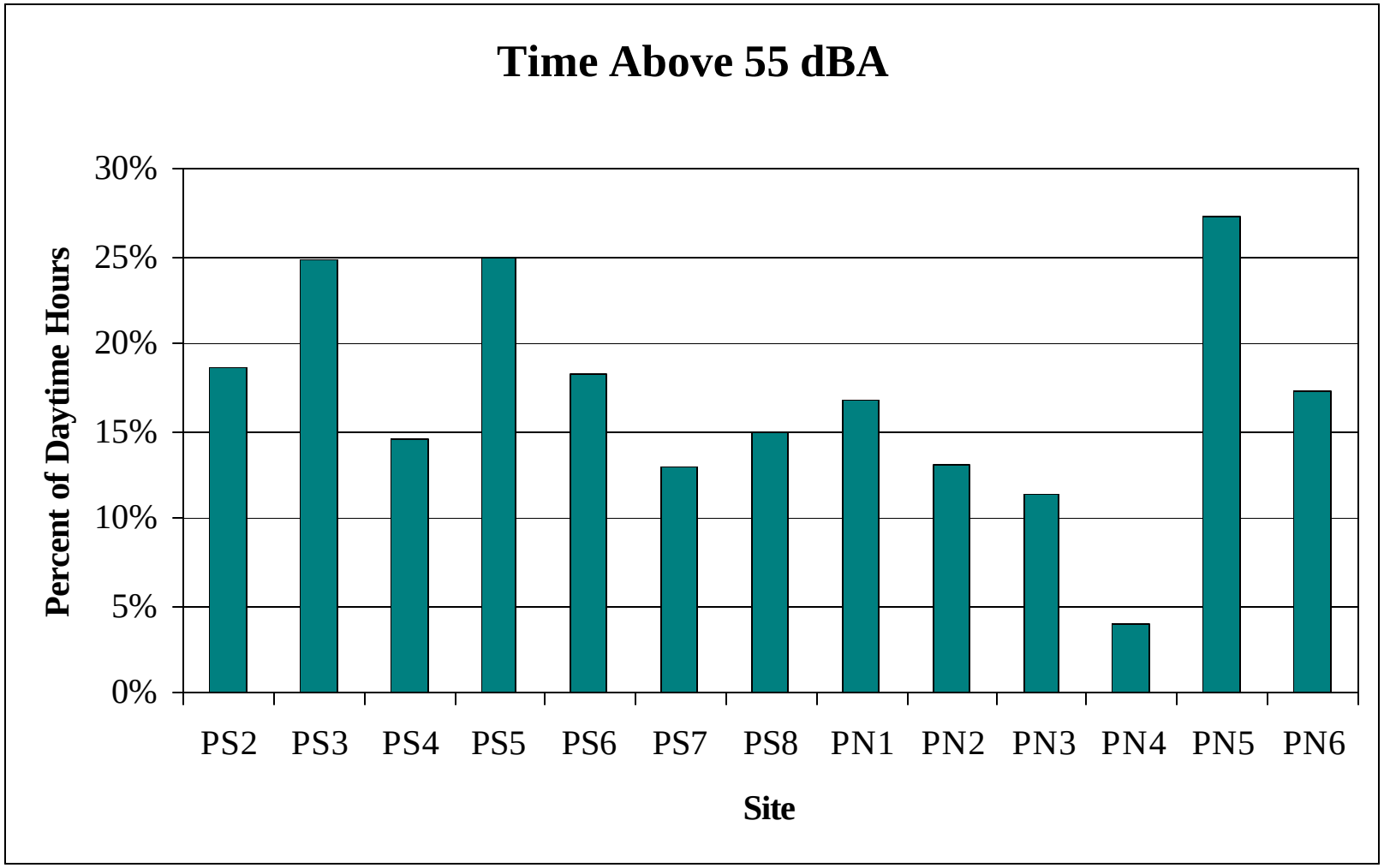


Single Event Measurement Results

- Typical Lmax events are 65 to 80 dBA
- Occasional Lmax events up to 85 dBA
- Similar levels in most areas
- Helicopter time durations are 1 to 3 minutes

Time Above Noise Levels

How often is noise above different thresholds?

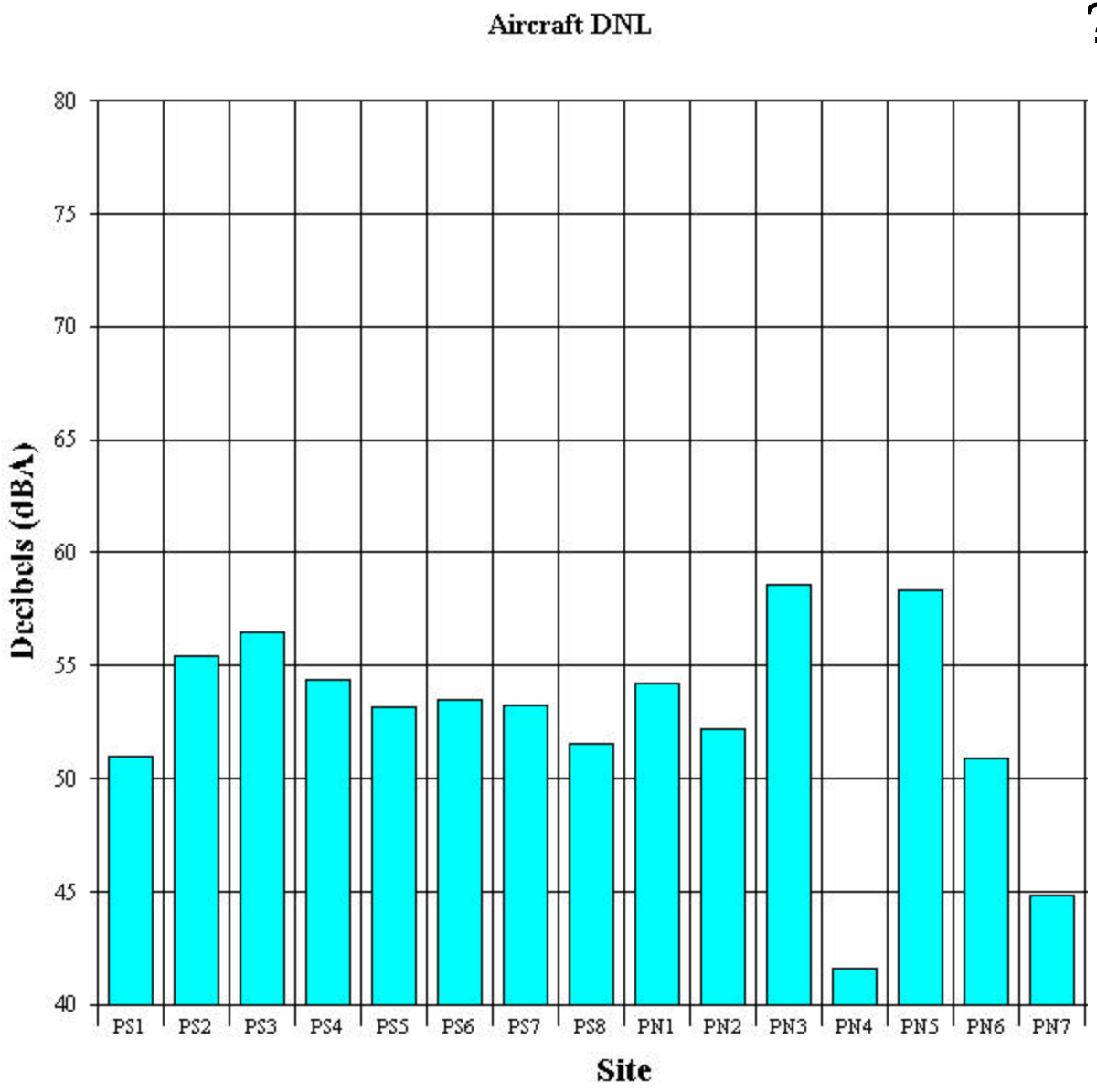


Time Above Measurement Results

- Time Above 55 dBA
  - Represents when aircraft maybe clearly audible
  - Daytime hours noise above 55 dBA 15% to 25% of the time
  - During Peak hours noise above 55 dBA over 90% of the time
  - Events occur 100 to 200 times per daytime hours
- Time Above 65 dBA
  - Represents when speech disturbance starts to occur
  - Daytime hours noise above 65 dBA 2% to 5% of the time
  - During Peak hours noise above 65 dBA up to 30% of the time
  - Events occur 50 to 120 times per daytime hours
- Time Above 75 dBA
  - Represents when noise is hard to speak above
  - Daytime hours noise above 75 dBA 1% of the time
  - During Peak hours noise above 75 dBA up to 3% of the time
  - Events occur 5 to 20 times per daytime hours

DNL and Modified DNL Noise Levels

?

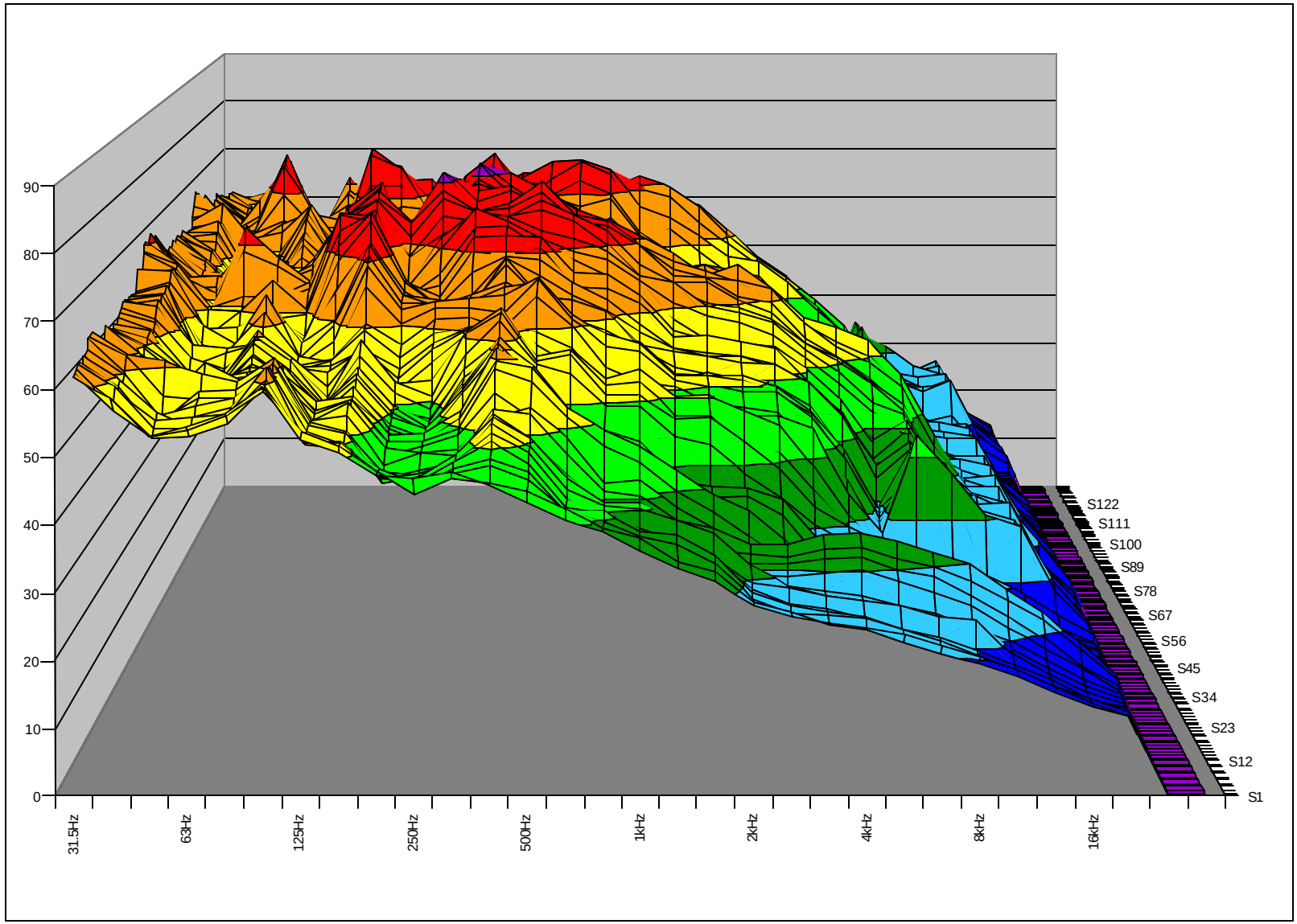


DNL Measurement Results

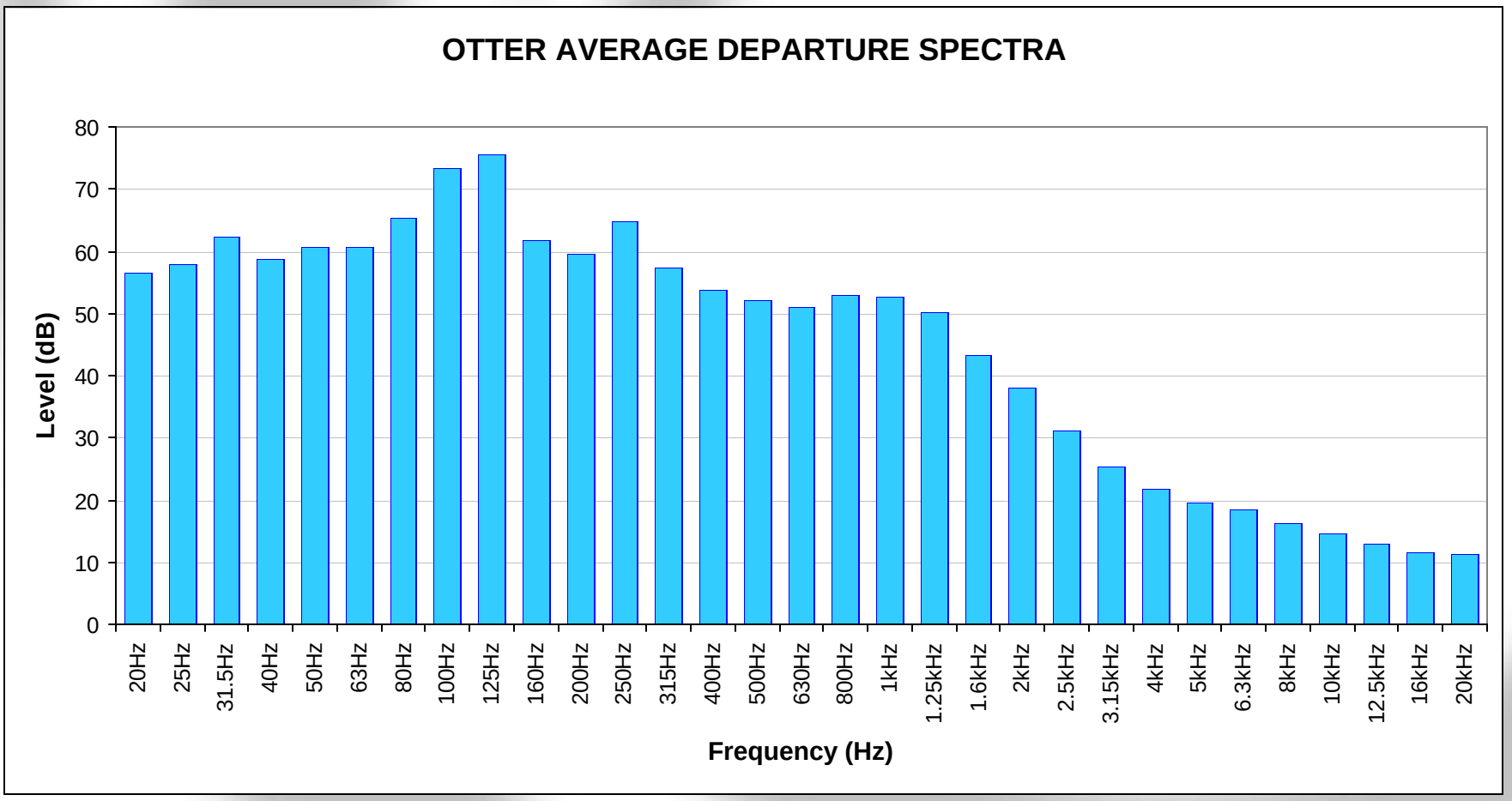
- Average Aircraft DNL noise levels ranged from 50 to 57
- Peak day levels 3 to 5 dB higher
- Modified DNL (8 am to 9 pm) noise levels 1 to 3 dBA higher

Frequency Character of the Noise

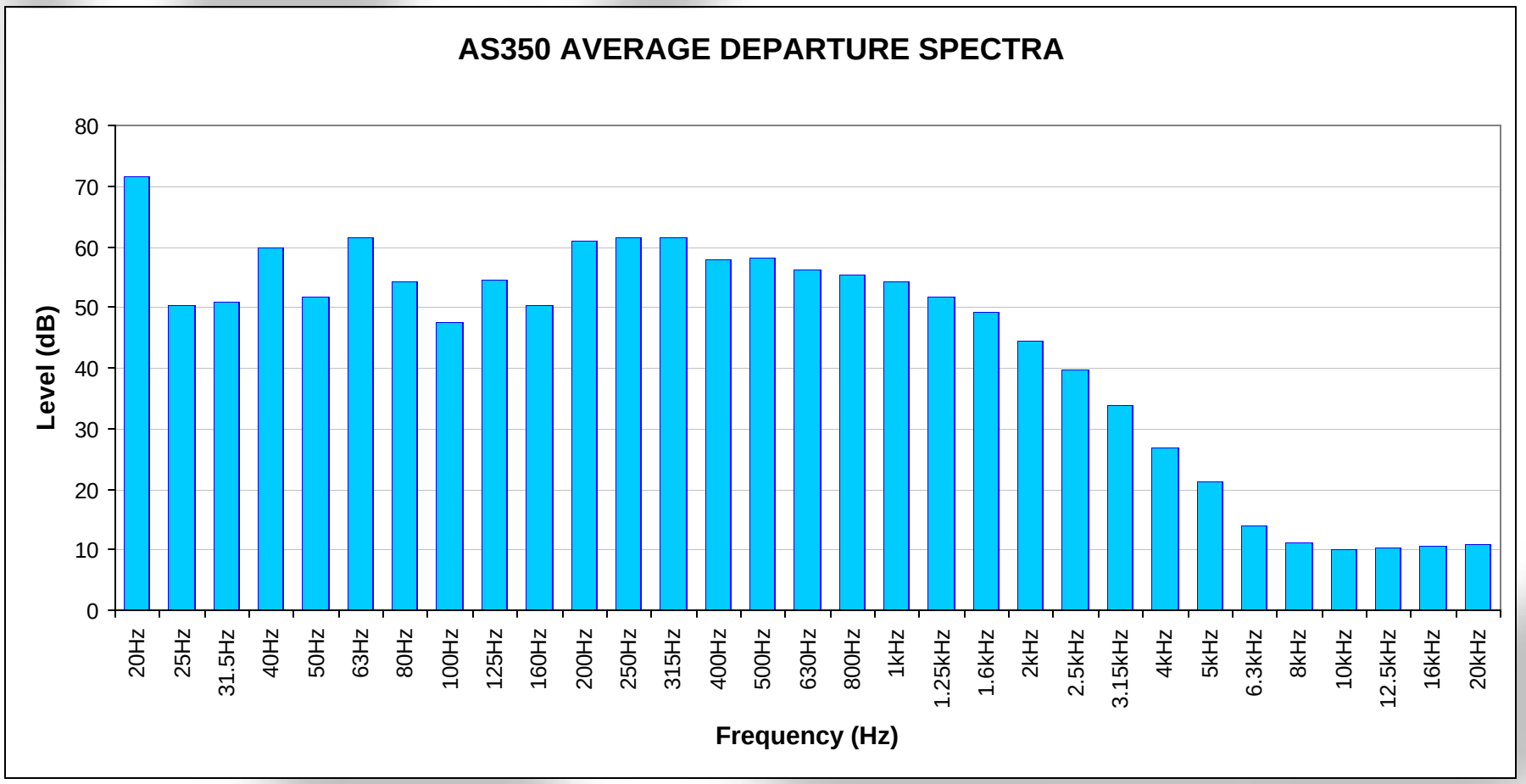
Why is some noise more annoying?



Character of Noise



Character of Noise



Summary of Measurement

- Ambient metric shows background levels in low 40 dBA
- Single Event
  - Typical single event peak aircraft levels 65 to 80 dBA
  - Highest levels of 85 dBA
  - Typical durations of helicopter events ranged from 1 to 3 minutes
- Time Above during Daytime hours
  - Aircraft noise is above clearly audible levels 15% to 25% of the time
  - During Peak aircraft can be above clearly audible over 90% of the time
  - Aircraft noise is above typical speech interference levels 2 to 5% of the time
  - Aircraft noise is above higher interruption levels about 1% of the time
- DNL
  - Aircraft DNL noise levels ranged from 50 to 57
  - Peak DNL days were 3 to 5 DNL higher
  - Modified DNL (summer daytime hours) about 1 to 2 dB higher

What to do with the data?

- Conduct dose-response survey
- Explore mitigation options
- Model alternative proposal relative to how they may change these noise levels
- Use in Mediation process

Mitigation Options

- Promote Federal level research
- Develop local regulations
- Alternative flight paths and procedures
- New technology
- Fly quiet programs
- Mediation process